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COMPUTER ASSISTED DEVELOPMENT OF AN INTEGRATED TRAIL CONSTRUCTION/RECONSTRUCTION PROGRAM FOR THE BOB MARSHALL WILDERNESS COMPLEX, MONTANA

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Clemson Class of 1985
June 12, 1987 - Final Copy

This paper was prepared as a student project in partial fulfullment of the requirements of the Professional Development for Outdoor Recreation Management Program at Clemson University. It in no way reflects USDA Forest Service policy nor are the opinions expressed those of anyone other than the author.

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Title: Computer Assisted Development of an Integrated Trail Construction/Reconstruction Program for the Bob Marshall Wilderness Complex, Montana

Abstract: The Bob Marshall Wilderness Complex includes 2300 miles of trails, many of which require construction/reconstruction to meet present and future needs. This paper provides an inventory of construction/reconstruction needs and costs for all of the trails in the Complex and also provides a computer assisted method of assembling and analyzing the inventory information to develop a coordinated system of construction/reconstruction priorities and advance planning/inventory priorities. This system is designed for easy use at the Ranger District on the Data General computer system currently used by the Forest Service.

The system is designed to implement the trail management direction in the recently completed BMWC Visitor Management Plan. That plan is based on the concept of Limits of Acceptable Change (LAC) and includes four "Opportunity Classes" as a basis for providing different Wilderness recreation opportunities. Factors inventoried and used in the prioritization process include: opportunity class direction, cost, special features (such as providing a loop opportunity or a scenic loop), soil suitability for construction and maintenance of trails, and transportation efficiency. A process for future integration of trail management with habitat needs of the grizzly bear (a T&E species) is also discussed.

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ACKNOWLEDGEMENTS

I would like to acknowledge the people who contributed to the completion of this project, as it truly was a team effort by many individuals. The project began with the support of the Regional Recreation Staff Group and with the support of the four Forest Supervisors and five District Rangers who are responsible for managing the Bob Marshall Wilderness Complex. Without this support, nothing else could have been done.

In completing the report itself, I would particularly like to thank several people who contributed their time and talents to provide the information base essential for the project. The resource assistants and trail foremen of the five Ranger Districts in the BMWC provided the inventory of construction/reconstruction needs and provided the cost estimates for the work on each trail segment. Included in this group of people are Fred Flint, Larry Brandvold, Chuck Neal and Bill Stine from the Flathead NF, Ray Mills from the Lewis and Clark NF, Nevin Guderian and Jerry Burns from the Helena NF and Jim DeHerrera and Jim Blackburn from the Lolo NF.

The soil scientists and/or geologists from the four National Forests in the BMWC provided all of the soils/geologic inventory and provided a very professional report complete with interpretations regarding the suitability of various soil groups for trail construction and maintenance. Included in this group are Dean Sirucek from the Helena NF, "Skip" Barnes from the Lolo NF, Al Martinson from the Flathead NF, Chuck Frey from the Lewis and Clark NF and Herb Holtorf from the Regional Office. Thanks also to Karen Cramer of the Lewis and Clark NF for completing the graphics work for all of the maps in the final report.

Finally, a special thanks to my wife, Barbara, whose patience and support was greatly appreciated during the long hours of data assembly and writing and who also read and helped edit the document.

EXECUTIVE SUMMARY

Title: Computer Assisted Development of an Integrated Trail Construction/Reconstruction Program in the Bob Marshall Wilderness Complex, Montana

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Summary:

The purpose of this project is to analyze the total needs for trail construction/reconstruction in the Bob Marshall Wilderness Complex and to develop a strategy for setting priorities and selecting trail projects to meet trail construction/reconstruction needs over the next 10-20 years. The paper was developed to meet the following specific objectives in that regard:

(1). Develop the trail system in a manner consistent with the opportunity classes described in the Bob Marshall Wilderness Complex (BMWC) Recreation Management Direction.

(2). Coordinate trail construction/reconstruction activities between the various managers responsible for the BMWC.

(3). Inventory and provide information about key wilderness resources and other factors (such as cost) which influence trail construction/reconstruction planning in the BMWC.

(4). Provide a computer assisted method of data display and analysis which can be used to develop overall trail construction/reconstruction priorities in an area as large as the BMWC (1.5 million acres) and which can be managed and used at the Ranger District.

Initially a literature search was conducted through the WESTFORNET system and data needs were identified. The data items identified were then collected in the following manner.

Each Ranger District in the BMWC was visited and an inventory was compiled which listed and mapped each trail segment in the BMWC in one of four major clases. These were (1) Needs total reconstruction, (2) Needs spot reconstruction and/or heavy mtce, (3) Needs no reconstruction and requires only routine maintenance and (4) Trail is in unknown condition. These categories were further subdivided by opportunity class and then were separated into groups based on whether the cost figures obtained were estimates or were reasonably firm. Several specific data items were recorded for each trail segment (such items as cost, construction class, opportunity class,) and a

color coded map was produced which displays the trail construction classes listed above.

At the same time the soil scientists and geologists from the four BMWC National Forests prepared a series of soil maps and interpretations which rated the soils within the BMWC as to their suitability for trail construction and maintenance.

All of the information for the project was then assembled in a large DATA TABLE on the Data General system. This DATA TABLE contains fourteen columns of information for each trail segment identified in the inventory (a total of 500 trail segments covering a total of 2360 miles of trails). The information in this DATA TABLE was sorted and manipulated using the pre-programmed DATA TABLE software and also by preparing reports using the PRESENT report writer on Data General. This equipment and these programs are currently available on all Ranger Districts as part of their Data General computer system.

A total of 1063 miles of trail require some amount of reconstruction in the BMWC (45% of the total trail system) and correction of the problem will require an investment of $6.7 million dollars (in 1985 dollars). At the current level of investment the total job will require 56 years to complete. Since the average life of a reconstructed trail is only 20-30 years, a problem clearly exists.

The problem is compounded in that the trail construction/reconstruction workload is unevenly distributed. At current levels of investment the Spotted Bear RD will require 90 years to complete the total job. Additional investment is essential if the job is to be completed. Funding from the Bob Marshall Foundation may help to alleviate this problem, but will need to be concentrated on those Districts where the current budget will never allow the job to be completed.

The paper provides a list of trails which are highest in priority for construction/reconstruction work based on analysis of the information contained in the DATA TABLE. This list is contained in Table Four. The high priority list contains 533 miles of trails and will require a total of $3.3 million to complete the identified reconstruction work. Most Districts can complete the high priority list within 20 years at current investment levels, but even this high priority list will require 48 years to complete on the Spotted Bear RD unless additional investment is made. The high priority list includes all of the trails requiring construction or reconstruction in Opportunity Classes 3 & 4 and a small number of trails in Opportunity Classes 1 & 2 which provide particularly good opportunities to improve the visitor experience and distribute use away from heavily used trails. The trails are listed in priority order and are ranked for each Ranger District using factors such as opportunity class, transportation class, suitability of the soils and special features such as providing visitor experiences.

The high priority construction/reconstruction list was also used to set priorities for trail inventory and advance planning prior to construction. The

trails which currently are in unknown condition were added to this list and also given a high priority for inventory. This site-specific inventory and planning is particularly important for trails that must cross poor soil areas and where the trail program must be coordinated with the habitat needs of the grizzly bear. In these cases management decisions must be made well in advance of construction.

Finally, all segments of trail which are under consideration as alternative routes for the Continental Divide National Scenic Trail were listed in Table Six along with pertinent information from the DATA TABLE which can be used to make a final route selection. This table is sorted by Ranger District and by Trail Number for easy use in the analysis process. The information includes such items as cost, need for reconstruction, opportunity class, soil suitability, and others.

The paper also provides recommendations for maintenance and use of the DATA TABLE in the future and for training the District personnel who will use it. It is recommended to digitize the map information and include it in the Geographic Information System currently being developed on several of the BMWC Forests.

A summary list of recommendations for the whole project is included on pages 40 to 42 of this report. That summary provides a more detailed look at specific recommendations and the rationale behind them.

INTRODUCTION AND LITERATURE REVIEW

Statement of Purpose

The purpose of this project is to analyze the total needs for trail construction/reconstruction in the Bob Marshall Wilderness Complex (includes the contiguous Bob Marshall, Great Bear and Scapegoat Wildernesses) and to develop a strategy for setting priorities and selecting trail construction projects to meet trail construction/reconstruction needs over the next 10-20 years. The paper was developed to meet the following specific objectives in that regard:

(1). Develop the trail system in a manner consistent with the opportunity classes described in the Bob Marshall Wilderness Complex (BMWC) Action Plan for Managing Recreation (Forest Service, 1986).

(2). Coordinate trail construction/reconstruction activities between the various managers responsible for the BMWC.

(3). Inventory and provide information about key wilderness resources and other factors (such as cost) which influence trail construction/reconstruction planning in the BMWC.

(4). Provide a computer assisted method of data display and analysis which can be used to develop overall trail construction/reconstruction priorities in an area as large as the BMWC (1.5 million acres) and which can be managed and used at the Ranger District.

Background and Rationale for the Project

This project was undertaken to meet the long-standing need to develop a better way to examine trail construction/reconstruction needs over the Bob Marshall Wilderness Complex (BMWC). The BMWC includes the Bob Marshall, Great Bear and Scapegoat Wildernesses which are contiguous to each other and which encompass a total of 1.5 million acres. Management of the BMWC is divided between five separate Ranger Districts included within four separate National Forests in the Northern Region (R-1) of the U.S. Forest Service. These are: the Spotted Bear and Hungry Horse Ranger Districts of the Flathead NF, the Rocky Mountain Ranger District of the Lewis and Clark NF, the Lincoln Ranger District of the Helena NF and the Seeley Lake Ranger District of the Lolo NF. Because of the large size of the BMWC and the number of different administrative units involved, it has proven difficult in the past to look at overall trail needs over the Complex and to coordinate activities between administrative units. One key objective of this study was to look at overall trail needs without respect to District/Forest boundaries and to develop a procedure for looking at construction/reconstruction priorities on a BMWC-wide basis, rather than on a Forest/District basis. At the same time it was important to develop a system which could be relatively easily used and updated at the Ranger District.

The project was undertaken at this time because a number of planning efforts which affect the BMWC have recently been completed and the trail construction/reconstruction program must be coordinated with those plans. In addition research has recently been completed in the BMWC concerning some user trends that may affect trail programs in the future.

Probably most significant of the planning efforts was completion of the BMWC Recreation Management Direction. This was completed in April, 1987 and is currently being implemented. This action program was developed in accordance with common direction in the National Forest Plans for the Flathead, Helena, Lewis & Clark and Lolo National Forests which were released in final form in 1986. The new management direction has been incorporated as an amendment to the Forest Plans and now provides the basis for managing visitor use in the Bob Marshall Wilderness Complex (BMWC).

This new direction is based on the concept of Limits of Acceptable Change (LAC) outlined in Stankey et al. (1985), rather than on earlier concepts of visitor carrying capacity. The BMWC was divided into four "opportunity classes" each providing distinct types of wilderness recreation opportunities. All of the opportunity classes provide for maintaining and in many cases improving the basic Wilderness resource. However, each opportunity class has different standards for such management indicators as number of trail encounters per day, level and extent of trail development, grazing use, barren core area in campsites, and similar indicators. Opportunity Class I provides a very pristine Wilderness recreation opportunity and areas in this class show virtually no signs of man's use. Opportunity Class IV areas are more typical of major trail corridors such as those leading from popular portals or to popular features. The management standards there still provide for a high quality Wilderness resource, but trail encounters are somewhat higher, trail standards are somewhat higher and more carefully designed and trail maintenance frequency is higher than in the more pristine classes. The net effect is to provide a spectrum of wilderness recreation opportunities and in essence, to subdivide the "Primitive" category in the Recreation Opportunity Spectrum (ROS) into four classes. Now that this planning effort is completed, it is necessary to integrate the trail construction/reconstruction program with the opportunity class standards.

This integration is particularly important because the trail system in the BMWC has a major effect on visitor behavior and on levels of visitor use in particular areas. In fact Lucas (1985) found that nearly all visitors to the BMWC stayed on trails and that off-trail use was minimal. He concluded that management of the trails was extremely important in overall use distribution and in visitor satisfaction. His study also showed that trail use currently is very uneven. The most popular trailhead in each wilderness accounted for one-third of the total use in 1982 and the top seven trailheads accounted for half the total use in the Complex. Use distribution on trails followed this same unbalanced pattern but may be able to be influenced by construction of trails in other areas that offer the same types of visitor experiences.

The study by Lucas (1985) referenced above also provided some interesting information about use trends in the BMWC over time and about visitor attitudes about the trail system there. His study compared visitor attitudes and use patterns in 1982 with a duplicate study of visitor attitudes and use patterns done in 1970 (Lucas, 1980). Several findings related to the trail system and are timely to consider in development of the trail system of the future. He found that hiking use has increased much faster than horse use since 1970. Total use has grown about 60% over that time period, so both classes of use have increased during that time. However, the percentage of each type of user changed from 40% hiker and 49% horseback in 1970 to 57% hiker and 36% horseback in 1982. Summer use was heaviest in both years; however, summer use gained in popularity relative to fall use between 1970 and 1982. In 1982 80% of the use occurred in summer compared to 20% in fall. The majority of users were satisfied with their wilderness trip (>90%) in both years. However, the most common negative complaint was about poor trails and this complaint was six times more common in 1982 than in 1970. From that information it would appear that the trail system of the future should increasingly be concerned with provision of opportunities for hikers and/or for trails designed for dual use by horses and hikers. In addition trails should be planned to provide opportunities for summer activities rather than as hunting trails. It also appears important to make an effort to correct the undesirable trail conditions which detracted from the experience of many visitors.

It is perhaps not surprising that the present-day trail system in the BMWC receives visitor complaints. The present trail system was originally developed mainly to provide low-volume administrative access for fire protection and similar purposes. The trails were located to achieve the "shortest distance between two points" and for ease in construction, rather than to provide a particular wilderness recreation opportunity. The locaters and designers of these trails did not envision the heavy recreation use that is now the norm. Therefore, several of the trails are causing resource problems that could be corrected by proper location and by reconstruction to today's standards. At the same time these trails could be located to provide the appropriate wilderness recreation opportunity envisioned in the new BMWC visitor management plan.

The need for proper construction and maintenance of trails has long been recognized by local managers of the Forest Service. Funding constraints in these lean budget times and the sheer magnitude of the problem (the Bob Marshall Wilderness Complex as defined for this analysis contains 2360 miles of trails) made it apparent that all sources of public and private help were going to be needed to deal with the situation. This led in 1986 to the formation of the Bob Marshall Foundation, a non-profit foundation established to collect private donations which could be used to help reconstruct the trails in the BMWC. The establishment of this Foundation was another factor which made it important to complete this project at this time. The Board of Directors requested the Forest Service to prepare an overall assessment of trail construction/reconstruction needs and a prioritized project list that could be used by Board members in their efforts to obtain donations. At the same time the local Forest Service managers also needed an overall look at trail

construction/reconstruction needs for much the same reasons (to set priorities and include appropriate projects in the Trail Capital Investment Program for Region 1 of the Forest Service). They also needed to be able to track construction/reconstruction needs in the future with a system which could be easily updated as trail segments were completed or as new inventory information became available about particular trails.

A final need that developed in 1986 was a need to complete the final route selection for the Continental Divide National Scenic Trail which traverses the BMWC in this area. The Comprehensive Plan for that trail was completed and distributed in 1986. The direction in that Plan is to complete designation of the final route in 1987 to allow for marking of the trail on the ground in 1988. Therefore, the managers also needed to examine the costs and needs for construction/reconstruction of different Continental Divide segments as a basis for making a decision on the final route.

METHODOLOGY

The needs expressed above led in 1986 to a project proposal which was endorsed by the Regional Recreation Staff Group and the four Forest Supervisors and five District Rangers which are responsible for managing the BMWC. At that time the information needs for the project were developed, personnel were assigned to gather the necessary information and the following methods were developed to complete the project.

Information Needed

The first step was to identify the information needed for the project. The most obvious information need was a mapped inventory of the trail system which separated the trails in good condition from those which required construction or reconstruction. The segments requiring work also needed to have cost estimates assigned to them. In addition information was also needed about the important factors which influence trail location and standard in the BMWC so the trail system ultimately built will meet the management objectives listed earlier. Finally a system of analysis was needed which could assemble, categorize and display the large volume of information about individual trail segments in a way that would provide an overall look at the problem.

The trail factors which were determined to be most important in assigning priorities for construction and reconstruction of trails in the BMWC include the following:

(1). Amount and type of use anticipated
(2). Transportation efficiency desired
(3). Visitor experience desired
(4). Construction/reconstruction cost
(5). Soil type

The soil type has a major influence on contruction and maintenance

of trails because of factors such as bearing strength, water holding capacity, stoniness, texture (particularly clay content), and similar characteristics.

(6). Key habitat areas for T&E species

The BMWC is the core of the Northern Continental Divide Grizzly Bear Ecosystem and is virtually all Management Situation 1 Grizzly Bear habitat. In MS-1 areas management activities must be done in a way which fosters recovery of the grizzly bear from Threatened status. Routing of trails should be done in such a way as to minimize confrontation between grizzlies and humans, both to protect the habitat and to provide for human safety. The BMWC may also become a recovery area for the Endangered gray wolf.

(7). Vegetation habitat type

Dale (1973) found that trail problems and trail damage could be related to overstory tree types in the Madison Range of Montana. Each type had characteristic types of problems. Similarly Cole (1983) found correlations between vegetation habitat types and trail conditions in the Big Creek drainage of the Selway-Bitterroot Wilderness. He felt that since the habitat type is an expression of all the environmental variables at a site (including soils), then particular habitat types will have characteristic trail problems associated with them. For example trails in the Abies lasiocarpa/Streptopus amplexifolius habitat type had very serious bog problems and problems with muddiness. This is not surprising as this habitat type is indicative of a high water table.

Methods and Techniques

A literature review was conducted to identify information currently available about management of the BMWC and to assemble currently available information relating to the trail factors listed above. This was done primarily through the WESTFORNET system and by collecting available information from sources on the affected National Forests. Most of the pertinent studies have been referred to previously in this paper, so will not be repeated here. Rather the key sources which directly apply to the information needs listed in the previous section will be discussed.

Information existed concerning the first three trail factors (Amount and type of use, transportation efficiency desired and visitor experience desired). These three factors are incorporated into the maps of Wilderness opportunity classes (and associated indicators and standards) which were developed in the BMWC Action Plan for Managing Recreation (Forest Service, 1986). In addition a trail transportation plan was prepared in the mid 1970's for the Bob Marshall Wilderness only (does not include the Great Bear and Scapegoat) by personnel of the Flathead NF (Dollan, 1976). These documents were used as the primary source of information for the first three factors.

Very little information was readily available about the extent of construction/reconstruction needed and the associated costs. Therefore, the

following inventory procedure was developed. Key trail management personnel on each of the affected Ranger Districts were asked at the beginning of the 1986 field season to review their existing trail inventory information and to collect information from their trail crews and users sufficient to divide their trail system into one of the construction/reconstruction classes listed below. They were then asked to transfer the identified segments to a topographic map (preferably 15 minute quadrangles) and to develop a cost estimate for each segment. Recognizing that a total new inventory on the ground was not feasible, the categories were structured to indicate whether the cost estimate was very firm and complete, or whether the estimate was an "average cost per mile" estimate based on the cost of doing similar work elsewhere. The categories were also structured to separate trail segments in Opportunity Classes 1&2 (the more pristine categories) from segments in Opportunity Classes 3&4 (the areas of higher use and where transportation efficiency is more important).

The construction/reconstruction classes are as follows:

Class A. The trail segment is in Opportunity Class 3 or 4 and has serious safety/resource damage problems for much of its entire length. Correction of the problems will probably require relocation and/or reconstruction of virtually the entire trail. An alternative route has been identified and a firm cost estimate has been made. The new location considers visitor experience to the extent possible by providing scenic vistas and an interesting route.

Class B. The trail segment is in Opportunity Class 3 or 4 and has serious safety/resource damage problems for much of its entire length. Correction of the problems will probably require relocation and/or reconstruction of virtually the entire trail. An alternative route has not been identified and costs can only be estimated based on average construction costs at this time.

Class C. The trail segment is in Opportunity Class 3 or 4 and has "spot" safety/resource damage problems that can be resolved by minor relocation and/or short stretches of reconstruction. This class also includes areas that might be termed "heavy maintenance". Needed work has been identified on the trail inventory and a reasonably firm cost estimate has been made.

Class D. The trail segment is in Opportunity Class 3 or 4 and has "spot" safety/resource damage problems that can be resolved by minor relocation and/or short stretches of reconstruction. This also includes "heavy maintenance". Needed work has not been identified and costs are estimated based on average construction cost.

Class E. The trail segment is in Opportunity Class 3 or 4 and the present condition is unkown. Every attempt should be made to keep this class as small as possible.

Class F. The trail segment is in Opportunity Class 1 or 2 but is otherwise similar to Class A above.

Class G. The trail segment is in Opportunity Class 1 or 2 but is otherwise similar to Class B above.

Class H. The trail segment is in Opportunity Class 1 or 2 but is otherwise similar to Class C above.

Class I. The trail segment is in Opportunity Class 1 or 2 but is otherwise similar to Class D above.

Class J. The trail segment is in Opportunity Class 1 or 2 but is otherwise similar to Class E above.

Class K. The trail segment is in any Opportunity Class but is in acceptable condition and provides an acceptable visitor experience. Only routine maintenance is required.

In October, 1986 the author made a trip to each Ranger District to review their maps and to record cost and other key trail information (each mapped trail segment was reviewed and discussed individually with knowledgeable District trails personnel to ensure consistency and correct any errors). The trails mapped and listed included all of the trails within the BMWC boundary as well as trails outside the Wilderness boundary which provide access from trailhead facilities. Many of the trails had different segments in separate construction classes; therefore, the number of segments listed is larger than the total number of trails.

The next information need identified was Soil Type. This information was provided by soil scientists and/or geologists on the staff of the four National Forests which manage the BMWC. Information was not gathered with the idea of making project level decisions about trail location. Rather the objective was to identify broader areas of particular soil types which might affect the location of the trail system in a transportation planning sense. The objective was also to identify areas where it would be desirable to include a soil scientist in making project level trail location and design decisions. The information was compiled from existing landtype maps on the National Forests combined with a geologic map of the BMWC.

To develop an interpretive map for soils as they relate to trail construction and maintenance, a geology map of the area was used as the starting point. From this base map groupings of similar geologic types were made. These groupings were made on the basis of the type and severity of problems which would be encountered if trails were placed in these formations. The final groupings (Limestone, Shale and Other) were then overlayed with the landtype groupings from the "Land System Inventory of the Scapegoat and Danaher Portion of the Bob Marshall Wilderness". These combination groupings were then developed into an interpretive map by the soil scientists and a series of narrative interpretations were provided which were keyed to the maps.

As a final product, two map overlays were prepared. The first showed the soils of the BMWC grouped into the classes of Poor, Fair and Good as they were rated for trail construction. The second showed soil groupings of Poor, Fair, Good and Very Good as they were rated for trail maintenance. The soil ratings for construction and for maintenance were then recorded for each trail segment mapped by the District trails personnel.

Information concerning grizzly bear habitat is not currently complete. Therefore, it was not used in this first look at priorities for the BMWC. However, mapping efforts are currently underway to gather appropriate habitat information for use in Biological Evaluations of projects which "may effect" the grizzly bear. Analysis of effects on grizzly bear habitat in the future will be done using a computer model called the Cumulative Effects Model (CEM). As trail projects are proposed they will examined to determine whether the proposed project will exceed the threshold where cumulative losses of habitat will endanger the existence of the bear. It will also be possible when the model becomes operational to measure the cumulative effects of the total trail system in the BMWC and restructure portions of it as necessary to avoid grizzly bear habitat impacts. Therefore, the decision was made not to include grizzly habitat as one of the factors in this analysis. Rather that information will be incorporated when the habitat mapping is completed and the CEM is operational. This has been somewhat incorporated into the Opportunity Class allocations because the US Fish and Wildlife Service has issued a Biological Opinion that implementation of the BMWC Recreation Management Direction will not jeopardize the grizzly bear. Therefore, limited short-term risk exists to grizzly bear habitat and impacts can be considered at the project level as new trails are constructed.

Information also is not currently available summarizing the habitat types in the BMWC and in tieing particular trail problems to particular habitat types. The grizzly bear habitat components being mapped are based on habitat type groups and may provide a base map for this effort when completed. However, additional work will be needed before this is a workable tool. Therefore, habitat type information was not used in the analysis. This is an area that should probably be examined by the Regional Ecosystem Management Group as they develop management implications information for each of the habitat types in the BMWC.

The last item of data inventoried was to identify each of the alternative routes for the Continental Divide National Scenic Trail. Segments of trail along these alternative routes were identified and then noted with a special designation to indicate that they fell along a potential Continental Divide trail route. This was indicated in the table developed at the Districts by placing the notation "CD" in the column identifying Special Features.

Once the inventory information was gathered it was assembled and displayed in two ways. A topographic base map at the scale 1" = 1 mi was prepared for the entire BMWC. Trail segments were drawn on this map from the maps collected at the Ranger Districts and were color coded by construction/reconstruction class. The length of each trail segment was measured with a planimeter and compared

against the value in the trail inventory on each Forest. Once these measurements were made, the map was redrafted on planimetric maps of 1/2" = 1 mile so that the entire BMWC could be viewed on one sheet. A copy of this map is included in the map packet at the end of the report. Overlays were then prepared for this map showing (2) the soil interpretive map showing classes of soils rated for construction suitability and (3) the soil interpretive map showing classes of soils rated for maintenance suitability.

The narrative information was then assembled into a format suitable for computer display and analysis on the Forest Service-wide Data General computer system. The Data General System has several software programs which were used to assemble, analyze and display the data. These are easy to use and can be used at the Ranger Districts on their existing Data General equipment.

The most important of these programs is the DATA TABLE program. This program allows data to be entered in rows. Once the information is entered, any combination of columns and rows can be extracted electronically with a few simple, pre-programmed commands. Reports can also be generated from the data in other formats by using the PRESENT report writer program in Data General. Material in the reports can then be formatted into graphs, charts or other data tables, all electronically. These programs were used to assemble, sort, analyze and display the written data. These same programs can be used at the Ranger Districts to maintain and update the information and to do analysis of the information.

The data base used for this project is a large DATA TABLE which includes information on every segment of trail inventoried. The DATA TABLE was structured so that each distinct trail segment constituted a row in the DATA TABLE (this resulted in a table with over 500 rows). The Columns included the discrete data items recorded for each trail segment. The table included 14 columns of information listed as follows: (1) Ranger District, (2) Trail Name, (3) Trail Number, (4) Trail Length, (5) Trail Segment (a description of the location of each segment), (6) Special Features (Continental Divide segment is an example), , Soil Rating-Construction, (8) Soil Rating-Maintenance, (9) Opportunity C ass, (10) Transportation Category (these were the transportation classes identified in the 1976 Trail Transportation Plan for the Bob Marshall Wilderness-no entry was made for the Scapegoat and Great Bear Wildernesses), (11) Construction Class (the mapped classes), (12) Type of Work (a brief description of the work needed on a trail segment) (13) Cost Per Mile, (14) Total Cost.

The analyses actually completed are described more fully in the RESULTS AND DISCUSSION section which follows. Basically, however, various data items were selected and combined in various ways to look at the overall trail construction/reconstruction job in the BMWC and to look at trail construction/reconstruction priorities.

RESULTS AND DISCUSSION

Overall Results and Patterns

As stated in the METHODS section several sources of information were assembled into a series of maps to view the overall picture in the BMWC. These maps and overlays are attached in Appendix I. Information from these maps and from other sources was assembled into a large DATA TABLE so that computer technology could be used to sort and manipulate the large volume of information. The total DATA TABLE is included as Appendix II. The information has been sorted by Ranger District and is listed in order by trail number. The results and implications of this information to trail management in the overall BMWC are displayed below by category.

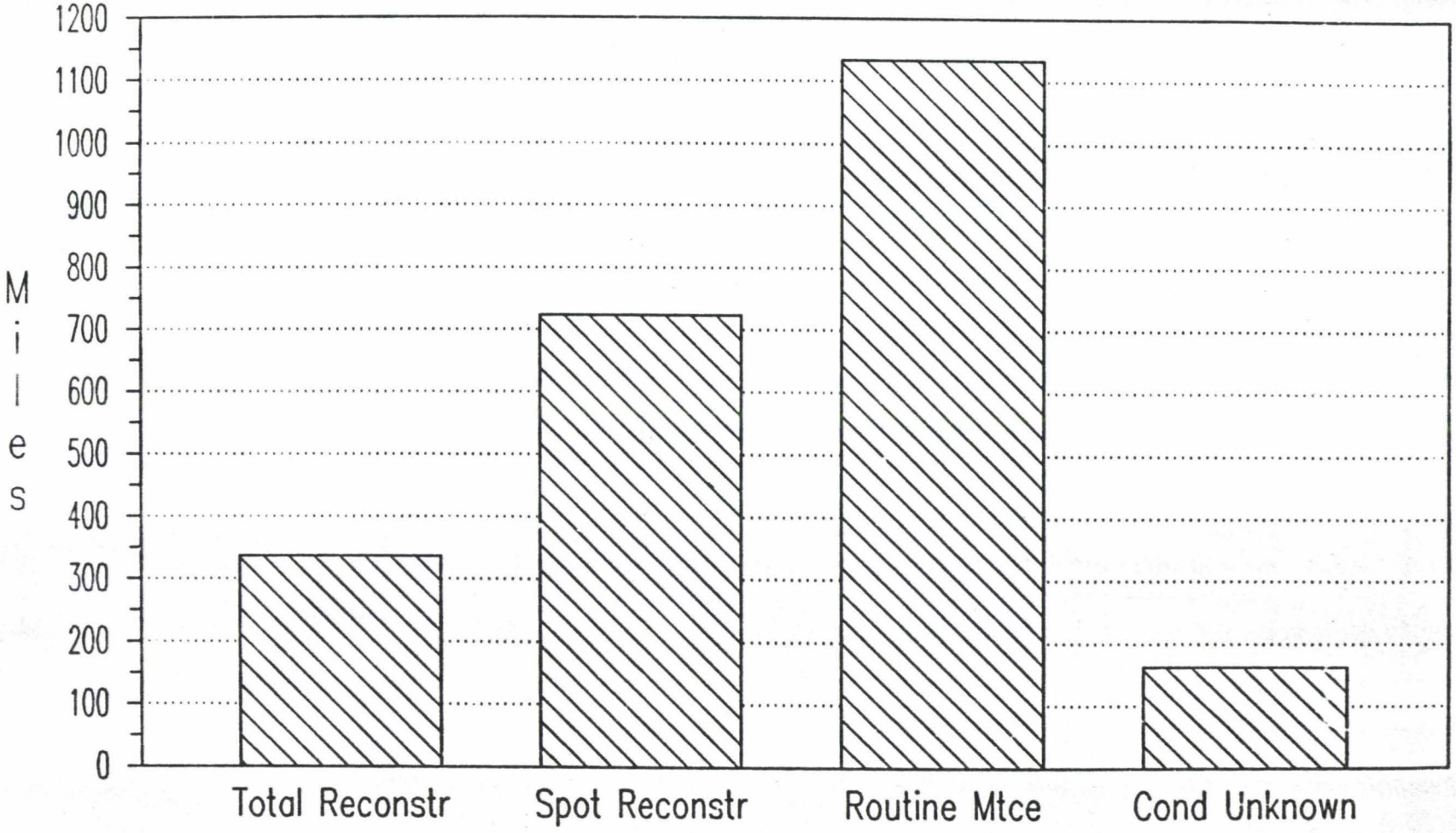
Total Construction and Reconstruction Needs

In viewing the map in the Appendix I it is obvious that the needs for trail construction/reconstruction across the BMWC are significant. Figure One below shows the total mileage of trails in four categories. As shown, a total of 1063 miles of trails require some form of construction or reconstruction. This represents 45% of the total trail system. The projected cost of completing the total job is $ 6.7 million in 1985 dollars (this figure represents the project cost on the ground and does not account for overhead or planning costs). This is a very large sum when compared to the current construction/reconstruction budget in the BMWC which averages $120,000/year (dollars actually received at the Ranger Districts). At that rate of investment, the total job would take 56 years to complete.

Because treatment costs on many of the trail segments have been estimated by looking at the trail in general and have not been verified as yet by preparing a detailed project plan, the overall cost figure could be in error to some degree. However, the estimates were all made by experienced trail personnel based on actual experience with costs of past projects and appear to be in the "ball park". The accuracy of these cost estimates was examined by comparing the average cost/mile of projects where cost was estimated with the average cost/mile of comparable projects where a detailed project plan has been completed. The average cost for trail segments requiring total reconstruction and/or relocation is $10,700/mile for those projects where firm cost data are available. This compares with an average cost of $14,400/mile for comparable projects where costs were estimated. Similarly the average cost for trail segments requiring only spot reconstruction and/or heavy maintenance is $2,100/mile for those projects with firm cost data. This compares to $3,200/mile where costs were estimated. It appears that the estimated costs may be slightly inflated, assuming that the work is of comparable complexity.

Therefore, the overall figure of $6.7 million is probably at the upper end of the range. These figures do not include planning and overhead costs, which

Figure One: Present BMWC Trail System Showing Inventoried Treatment Needs



would need to be added to develop an actual budget figure. Even if the total "on ground" cost estimate is reduced by using the lower average cost of the projects with firm cost data, the total cost would still be $5.1 million and would take 43 years to complete at current investment levels. This time period compares unfavorably to the 20-30 year average life of a trail after reconstruction. Clearly a serious problem exists for any cost level in the range shown.

The percentage of the listed trail projects which have firm cost estimates varies considerably by Ranger District. For example the Rocky Mountain Ranger District and the Lincoln Ranger District have reasonably firm cost estimates on close to 2/3 (65% and 67% respectively) of the projects they have listed in the DATA TABLE, while other Districts in the Complex have reasonably firm cost estimates on only 7% to 20% of the listed projects. Overall, 26% of the projects listed in the DATA TABLE (a total of 280 miles of trail) have reasonably detailed cost estimates at this time. This means that additional advance planning and detailed field work will be needed to firm up cost estimates on approximately 3/4 of the identified projects as they surface in the construction priorities. An additional 7% of the trails in the BMWC (163 miles) currently are in unknown condition and will also need additional field work. This information has implications for setting advance trail planning/inventory priorities in the Complex and will be discussed in more detail in a later section of the report.

Figure Two shows the miles of trails requiring construction/reconstruction by Ranger District. As can be seen by the figures, the most significant workload is on the Spotted Bear RD which contains 46% of the trails included in this analysis and has 58% of the trails needing reconstruction. Figure Three shows the corresponding total dollar estimate for trail reconstruction by Ranger District. Again, the greatest need occurs on the Spotted Bear RD, which would require 90 years to complete the necessary work at the current investment level. As shown in Table One, all Districts would require at least several years to complete the necessary work. Three Districts would require more time to complete the work than the 20-30 year period a newly reconstructed trail would be expected to last.

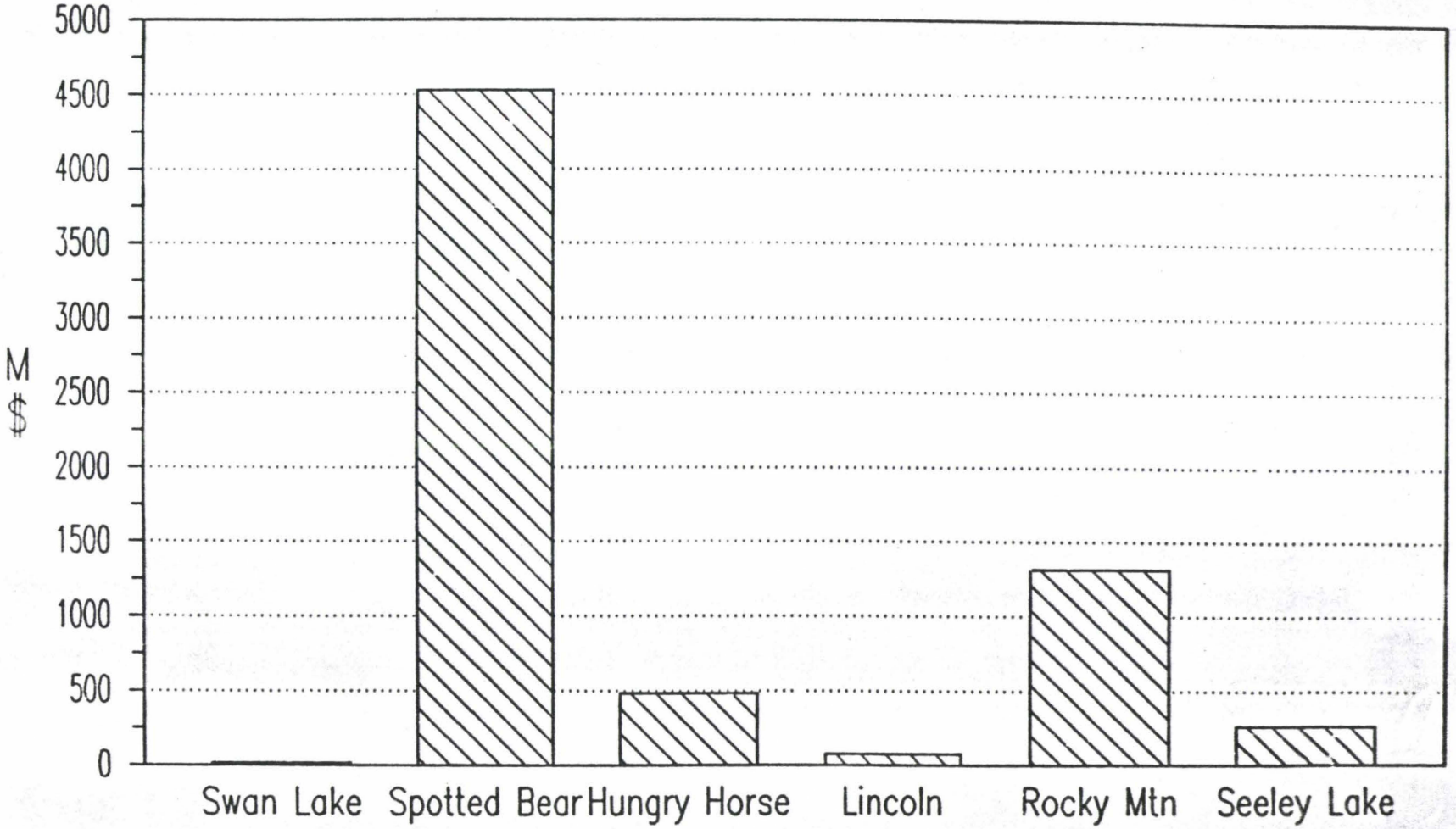
Table One: Time Needed to Complete Construction/Reconstruction by Ranger District at Current Investment Levels

Ranger District	Total Const/Reconst Needed (M$)	Current Investment Level (M$)	Years to Complete Const/Reconst
Swan Lake RD	15.0	2.0	8
Spotted Bear RD	4,527.8	50.0	90
Hungry Horse RD	482.1	15.0	32
Lincoln RD	75.4	8.0	9
Rocky Mtn. RD	1,315.6	25.0	53
Seeley Lake RD	262.0	20.0	13
Total	6,677.9	120.0	56

To complete the necessary work within a reasonable time period (say 20 years) it would be necessary to increase the investment on the Spotted Bear RD from $50,000 per year to $225,000 per year, increase the investment on the Hungry Horse RD from $15,000 per year to $25,000 per year and increase the investment on the Rocky Mountain RD from $25,000 per year to $65,000 per year. It should be emphasized that these are project costs on the ground and do not account for advance planning or project preparation. In preparing actual budget requests planning and overhead costs will need to be estimated by each Forest and added to this total. Perhaps the Districts listed above should receive priority for funding from the Bob Marshall Foundation when (and if) funds become available from that source. If additional funds do not become available, then it will be critical to focus the funds that <u>are</u> available on the most serious problems. Establishment of a reasonable means for setting trail construction/reconstruction priorities is a major objective of this paper and much of the remaining discussion is focused on the factors which can be used to complete that process.

Figure Two: Miles of Trail Needing Construction or Reconstruction by Ranger District

Figure Three: Total Cost (in M$) of Trail Construction or Reconstruction by Ranger District



Setting Priorities Based on Earlier Transportation Planning and C[illegible]mance with the BMWC Visitor Use Plan.

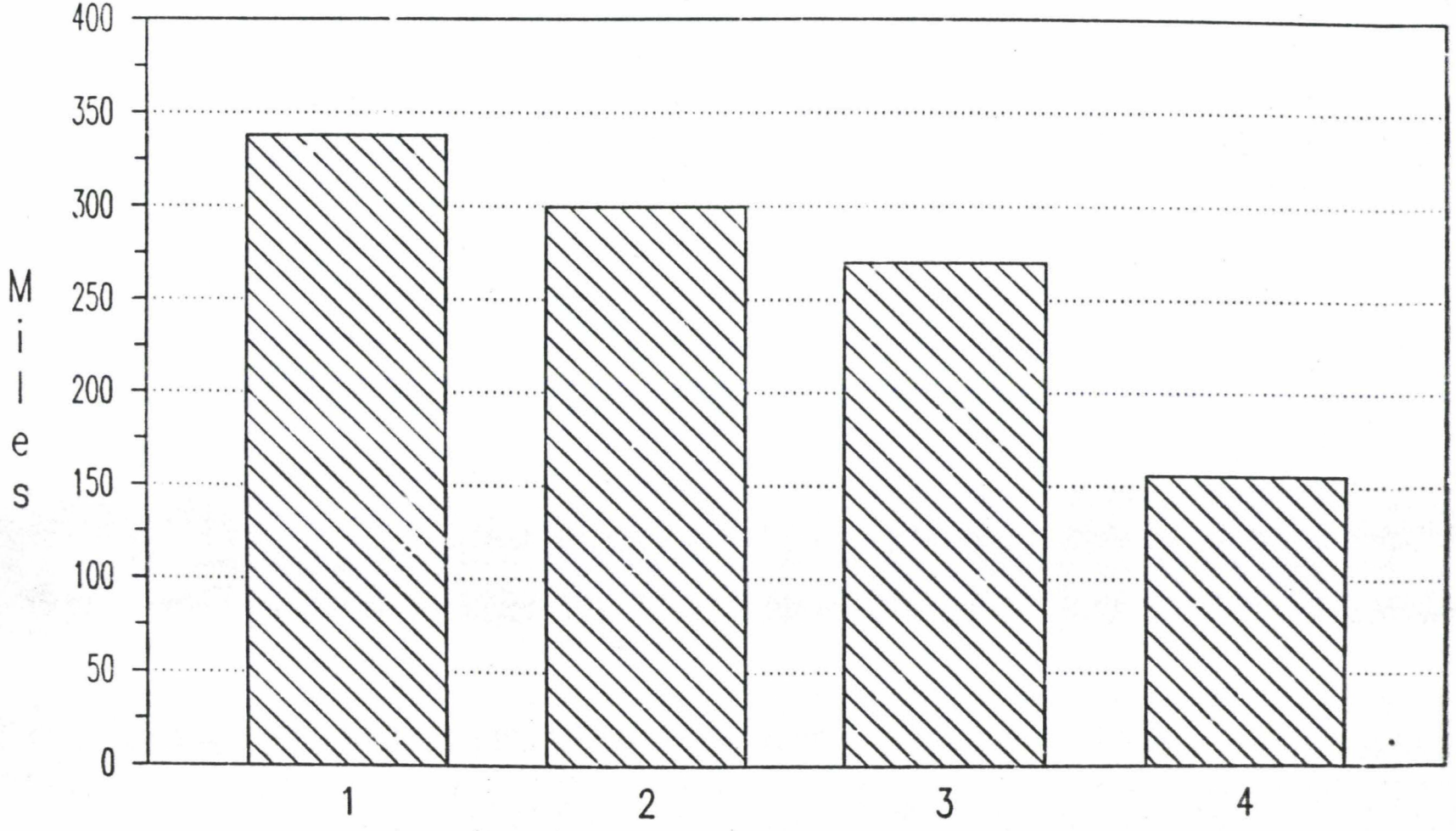
Because the trail system of the future must be designed to implement the BMWC Recreation Management Direction, the trail management objectives established for each Opportunity Class are a major factor influencing trail construction/reconstruction priorities. The DATA TAELE was organized to allow easy coordination of the trail construction/reconstruction program with the recreation management objectives. Each trail segment requiring construction or reconstruction is keyed to the map of Opportunity Classes and the Opportunity Class designation can be easily identified for any trail segment by using simple computer commands. In addition, the DATA TABLE allows comparison of the Opportunity Class designations with the transportation categories in the Trail Transportation Plan completed for the Bob Marshall Wilderness in the mid-seventies (Dollan, 1976).

Figure Four shows the miles of trail needing construction/reconstruction in each Opportunity Class. It is interesting that the need for reconstruction parallels the Opportunity Class allocations. The more pristine the opportunity class designation, the more miles of trail which require reconstruction. This is related to two factors. First, less of the total trail system in the BMWC is in OC 3&4 than in OC 1&2, although the difference in total trail miles is not great. Second, and more important, the managers have concentrated their limited resources on maintaining the mainline trails (usually OC 3&4) in the BMWC, therefore, overall they are in better condition and less miles require reconstruction than is the case on secondary trails (usually OC 1&2).

This management attention has occurred because in general the trails in Opportunity Classes 3 and 4 are the major transportation links in the BMWC. The standards for construction and maintenance of these trails are higher and the use is heavier by all classes of users than is the case for trails in Opportunity Classes 1 and 2. On the other hand, the Opportunity Class 1 and 2 trails provide a visitor experience which is very pristine and has a high degree of solitude. These trails also offer the opportunity to provide hiker opportunities and often can provide good scenic loops and other low-use visitor opportunities. However, since designed use level of these trails is lower than for the OC 3&4 trails, and since the management direction is to avoid designing them primarily for transportation efficiency, it is less critical in the short term to correct other than major resource or safety problems. Therefore, the tendency of the managers has been to concentrate construction and maintenance attention on the OC 3&4 trails and spend less attention on the OC 1&2 trails. In several areas this has resulted in concentrating use on the OC 3&4 trails and has resulted in the virtual elimination of loop opportunities and side trails where visitors could seek a higher quality experience. Managers identified several of these "lost opportunities" during the inventory and they are "tagged" in the DATA TABLE so the information can be easily retrieved.

Because the OC 3&4 trails are the mainline trails, correction of the problems on these trails has been seen by the managers as higher in priority than the problems on the OC 1&2 trails. Since use is heavier on these trails and they

Figure Four: Miles of Trail Construction/Reconstruction
by Opportunity Class



provide the major transportation links in the BMWC, it seems reasonable that these trails should continue to receive the highest priority attention, all other factors being equal. Therefore, separating the trails by Opportunity Class appears to be a good initial ranking factor. This is particularly true since setting priorities on this basis automatically implements the objectives of the BMWC Recreation Management Direction. Trails in OC 3&4 currently represent 40% of the total construction/reconstruction need (a total of 425 miles). When these trails are reconstructed, they should be located to improve the visitor experience where feasible, as well as to provide good transportation efficiency.

It also appears reasonable that some priority should be given to opening and providing opportunities for use of some of the high quality loop and scenic opportunities on the OC 1&2 trails discussed above. Therefore, some of the trails in OC 1&2 should also receive a high priority for reconstruction. This is probably most important near the periphery of the Wilderness where these trails could serve to meet hiker needs and in other critical areas where these opportunities could help to disperse visitors from some of the heavily used mainline trails. At the same time it will be critical to design and construct/reconstruct these trails in conformance with OC 1&2 standards and to avoid developing systems which attract so much use that they exceed the standards for visitor encounters in OC 1&2.

As mentioned previously, some of these "high-priority" OC 1&2 trails were identified by the local managers during the inventory and are "tagged" in the Data Table for retrieval. This will separate these trails from the other OC 1&2 trails and may be helpful in the priority setting process. However, the inventory of these "high-priority" OC 1&2 trails was not systematic, so all trail segments in this category are probably not currently identified. As local managers learn of additional high-priority opportunities of this type, the DATA TABLE can be updated.

A second factor which may be helpful in ranking trail construction/reconstruction priorities is the Trail Transportation Plan developed for the Bob Marshall Wilderness portion of the Complex (Dollan, 1976). This Plan does not cover the Scapegoat and Great Bear portions of the BMWC, but does divide the trails of the Bob Marshall Wilderness itself into four classes based primarily on the need for transportation efficiency. The transportation categories are numbered similarly to the Opportunity Classes defined by the BMWC Recreation Management Direction e.g. Class 1 trails have low transportation efficiency and are relatively low standard, while Class 4 trails have high transportation efficiency and are relatively high standard. The Transportation Plan also recommended abandonment of several trails to provide secure habitat for the grizzly bear. Most of these have already been dropped from the map and are not currently maintained. However, the trails in Table Two are still currently listed in the trail inventory, although they are mostly in the "Condition Unknown" category and probably have not been maintained any time recently. If the grizzly bear habitat reasons are still valid, these trails should probably be dropped from the system and no additional effort made to inventory and/or reconstruct them.

Table Two: Trails in the Bob Marshall Wilderness Recommended in the Trail Transportation Plan for Abandonment to Provide Grizzly Habitat

Ranger District	Trail Name	Trail No.	Trail Length
Spotted Bear	Albino Creek	118	2.8 Mi
Spotted Bear	Chasm Creek	368	5.? Mi
Spotted Bear	So Fk White River	380	2.5 Mi
Lewis & Clark	Gates Creek	162	3.5 Mi

It is not recommended that the actual trail standards established in this earlier Plan be adopted for the BMWC because the BMWC Recreation Management Direction has established new standards for each Opportunity Class. However, within a given opportunity class these transportation efficiency ratings may help to rank one trail over another. For example, if two trails both cross an OC 4 area and one trail is rated as Transportation Class 3 (TP 3) and the other is rated as TP 4, the trail rated as being more important in transportation efficiency would be higher in priority. The Trail Transportation Classes in the Bob Marshall Trail Transportation Plan are summarized below to give an idea of the transportation efficiency envisioned by the earlier planners.

Table Three: Trail Transportation Classes in the Bob Marshall Wilderness Trail Transportation Plan.

Class	Characteristics
ONE	Trail maintained for Hiker but not horse use. Grade allowed to wander vertically and horizontally and emulate game trails. Obstructions that can be stepped on or over will be allowed to remain. Excessive grades corrected only if causing resource damage.
TWO	All purpose trail to normally accomodate horse w/rider or hiking travel. May not be suitable for long pack strings. Grade may wander vertically and horizontally to emulate game trails. Obstructions will be removed if they cause users to detour or other resource damage is occurring. Excessive grades corrected only if causing resource damage.
THREE	All purpose trail to accomodate packstrings, horse with rider, and hiking travel. Long packstrings could encounter slower, more difficult travel. Trail may wander vertically and horizontally to take advantage of natural drainage. Obstructions will be corrected if they cause the user to detour or resource damage is occurring. Excessive grades will be corrected if resosurce damage is occurring.
FOUR	All purpose trail to easily accomodate large packstrings horse with rider, and hiking travel. Trail may wander vertically and horizontally for natural drainage if not significantly slowing travel. Avoid long tangents. Remove rocks, roots, and stumps. Fill holes which impede efficient flow of traffic. Strive for favorable grades that fit the lay of the land. Avoid continuous steep grades (cause erosion and tire humans and stock).

As indicated previously, these transportation efficiency ratings would be useful in the priority setting process only where they do not conflict with the Opportunity Class standards. Comparison of the Transportation Plan standards with the Opportunity Class standards revealed a surprisingly low number of conflicts (a conflict was defined to occur when the Transportation Plan Class varied more than one class from the Opportunity Class i.e. OC Class of 1 and TP Class of 3. This definition was used because TP Classes 1&2 could both meet the standards for OC 1 trails. Likewise, TP Classes 2&3 could both meet the standards of OC 2 trails, TP Classes 3&4 could both meet the standards for

OC 3 trails and TP Classes 3&4 could both meet the standards for OC 4 trails.

Overall, conflict occurred on only 16 of 120 trail segments (13%) using this definition. This indicates that the Transportation Plan is quite consistent with the Opportunity Class standards and that the transportation efficiency ratings will be useful in setting priorities for trail construction/reconstruction. It will be particularly useful in helping to set priorities for construction of OC 3&4 trails (the information can be used to select those OC 3&4 trails as first priority which provide the best transportation efficiency). This usefulness is enhanced because only 1 conflict in standards was noted in 43 trail segments (2%) of OC 3&4 trails. The highest level of conflict occurs with the trails in OC 1, where 9 conflicts were identified in 47 trail segments (19%). However, since transportation efficiency is not an important management objective on OC 1 trails, the conflicts are not as important there. In these cases the OC direction will simply override the TP Class.

Where conflicts exist between the two documents, the Opportunity Class direction from the BMWC Visitor Recreation Plan must set the priority. However, the transportation plan remains a useful tool for separating individual trails within an Opportunity Class.

Priorities Related to Soils

The soils information collected is primarily shown on the two soils maps in Appendix IV. These maps show soils in the BMWC (inside the Wilderness boundary only) grouped and rated as to their suitability for trail construction and for trail maintenance. The map showing suitability for construction includes ratings of Good, Fair and Poor. The map showing suitability for maintenance includes ratings of Very Good, Good, Fair and Poor. These maps were overlayed over the map of the trail system and each trail segment was assigned a rating for both construction and maintenance. These ratings were then included in the DATA TABLE so that the information could be easily retrieved. A narrative writeup was also prepared by the geologists and soil scientists who prepared the map which explains the geomorphic units and other factors used to develop the ratings. This writeup is included as Appendix I and will be very useful to managers as they look at particular trails on the ground. Each Forest soil scientist/geologist also has a map showing the units from which the ratings were developed.

The more specific narrative writeup and maps discussed above will need to be used for actual ground location and design of trails. The grouping process which was necessary to produce the maps of soil suitability ratings at a scale of 1/2" to the mile results in an estimated accuracy of approximately 65% for any specific point on the ground. These ratings therefore need to be "truthed" with the more specific narratives and mapped soil units for site-specific use. However, the maps are sufficiently accurate to meet the objective of identifying large areas of potential unsuitable soils and to provide the level of information necessary to set overall priorities for construction and reconstruction.

In looking at the overall pattern of soils on the map the dominant impression is that the majority of the BMWC has soils that are fair to good for both construction and maintenance. Therefore, trail construction/reconstruction can successfully be done in most areas and maintenance is feasible as long as care is taken to successfully locate the trails and to avoid site-specific problem areas like bogs. Figure Five displays the miles of trail in each of the soil suitability classes. Only 209 miles of the existing system (9%) are located in soils rated poor for construction and 405 miles (17%) are located in areas rated poor for maintenance.

However, Figure Five also shows that the soils in the BMWC are more suitable for construction than they are for long-term maintenance. The ratings for construction suitability are primarily in the good and fair categories (78%), while the ratings for maintenance suitability are primarily in the fair and poor categories (84%). This appears to be a realistic interpretation, because many of the individual trail segments are rated higher for construction suitability than for maintenance suitability. In almost no cases are segments rated higher in maintenance suitability than they are in construction suitability. The rating for maintenance is the most important in long term management of the trail system because of the implications for useful trail life and cost of maintenance. This information bears out a frequently expressed concern of the BMWC managers i.e. that reconstruction of the trail system is important and must be done, but that effort will be wasted if appropriate attention is not focused on maintaining the trails after they are reconstructed. Although outside the scope of this paper, the soil data indicates that a plan to provide proper maintenance of trails in the BMWC is particularly important. Otherwise, the gains made in reconstruction of the trail system are likely to be very short-lived.

Figure Six shows the construction and maintenance suitability ratings of the soils crossed by trail segments which have been identified as needing reconstruction work. The pattern parallels that of the overall trail system displayed in Figure Five. Only 119 miles (11%) of the trail segments cross soils rated poor for construction and 204 miles (19%) cross soils rated poor for maintenance. As is the case with the overall system, the construction suitability ratings are primarily in the good and fair categories (81%) and the maintenance ratings are in the fair and poor categories (90%). There is perhaps a slight trend towards the segments which require reconstruction being located on the poorer soils, but it does not appear significant.

Figure Five: Construction and Maintenance Suitability Ratings of Soils Crossed by the Existing BMWC Trail System

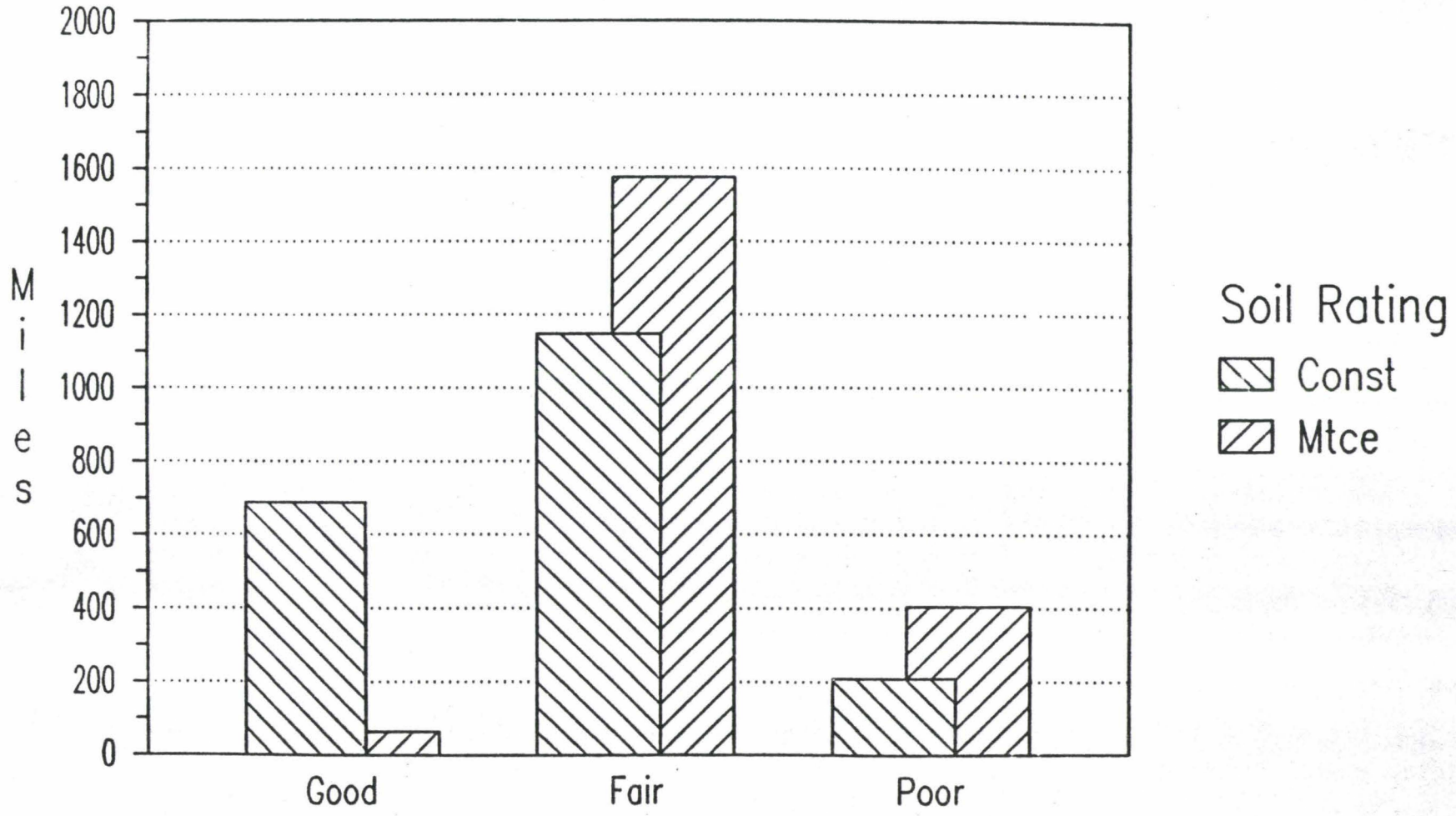
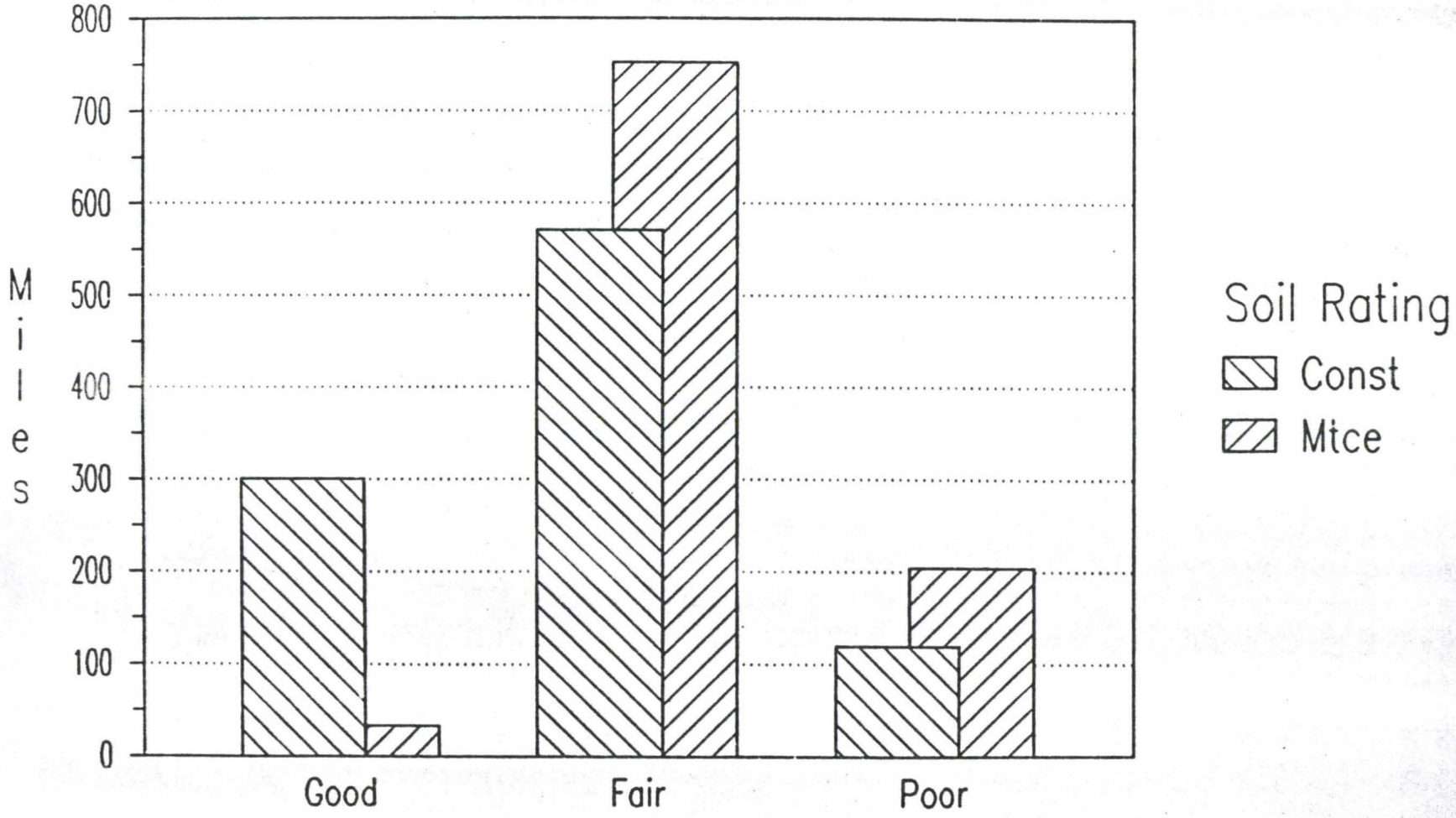


Figure Six: Construction and Mtce Suitability Ratings of Soils Crossed by Trail Segments Needing Reconstruction

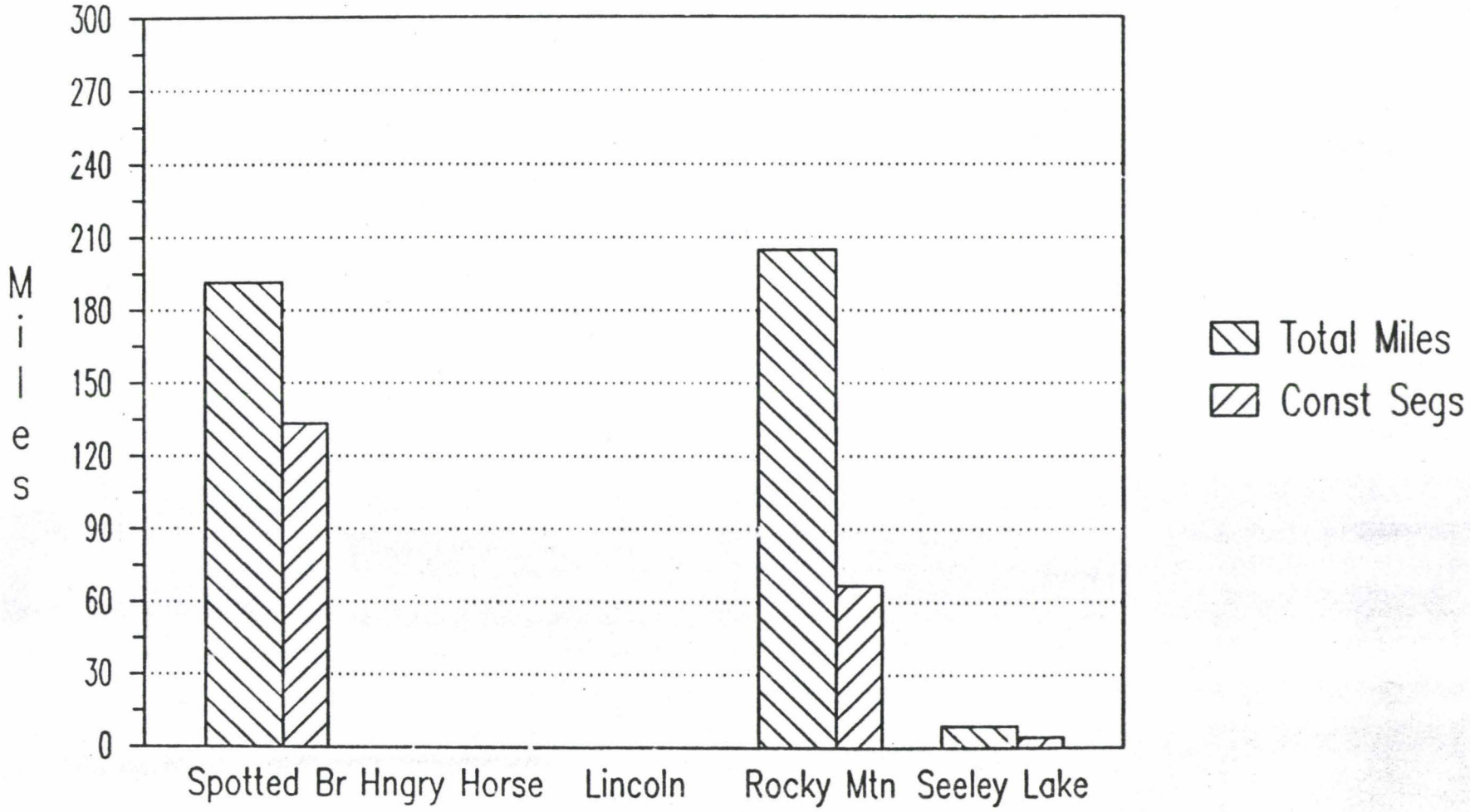


Based on this information, it would not appear that soil conditions would have much applicability towards setting trail construction/reconstruction priorities. However, the distribution of soil types is an important part of the picture. For example, soils are particularly good for construction and maintenance of trails in much of the Scapegoat Wilderness. This relates to the prevalence of good geologic parent material in that portion of the BMWC. On the other hand, a broad area of poor soils derived from shales is present in a band which runs northerly in the area drained by the Sun River on the Lewis and Clark NF and extends over the Continental Divide into the Middle Fork of the Flathead River drainage on the Flathead NF. In some areas these are dip-sloping shales which are subject to mass failure. In all areas they produce soils high in clay which are subject to poor drainage and poor bearing surface (see descriptions in the Appendix). Figure Seven displays the effects of these patterns quite vividly. The two Ranger Districts which contain the majority of the shale-derived soils listed above (Spotted Bear, Flathead NF and Rocky Mtn, Lewis and Clark NF) contain the vast majority (97%) of the trails which are rated poor for maintenance. On the other hand the Districts which are located in the good soils of the Scapegoat Wilderness (Lincoln and Seeley Lake) have almost none of these trail segments.

A significant concentration of trails needing construction/reconstruction because of deep bogs and similar conditions occurs in the shale-derived soil areas. This is particularly true in the Middle Fork of the Flathead drainage on the Flathead NF. The problem is not as severe in the Sun River drainage, primarily because the trails there were mostly reconstructed to modern standards with flood damage monies in the 1960's and 1970's. Many of the trails were surfaced at that time and maintenance has been good since that time because these are mostly high-use main trails. The climate between the two areas is also significantly different, since the two drainages lie on opposite sides of the Continental Divide. Precipitation is much heavier on the west side of the Divide and this increased moisture adds significantly to the soil problems in the Middle Fork of the Flathead drainage. Figure Seven shows this pattern rather clearly. The total miles of trail in areas rated poor for maintenance is virtually the same for the Rocky Mtn District (Sun River drainage) and the Spotted Bear District (Middle Fork Flathead drainage). However, the miles requiring reconstruction on the Rocky Mountain District are only half that on the Spotted Bear District. This information suggests that trails can be successfully constructed and maintained in these poor soil areas, provided that proper location and design are provided and that maintenance is provided. Maintenance costs will be higher on these soil types, particularly where heavy traffic occurs and even more particularly, where heavy horse traffic occurs.

In reviewing the soils information it appears clear that the majority of the BMWC has soils that are suitable for construction and maintenance of trails provided that they are located, designed and constructed properly. Therefore, soil ratings are not particularly useful for setting overall construction/reconstruction priorities. The soils information will be very useful in site-specific trail planning, however. The exception to this general rule is in the areas where soils are rated poor for construction and

Figure Seven: Miles of Trails by Ranger District Crossing Poor Soils for Long Term Maintenance



maintenance. Even in these soil areas it is possible to successfully construct and maintain trails if proper location and construction technique is applied. However, the increased cost associated with these areas suggests much more careful planning than in other areas.

In general it appears prudent to avoid the poor soil areas as much as possible. However, in large areas like the the Middle Fork Flathead River and Sun River it is not practical to do so. Therefore, the soil rating of "poor" should be used as a "red flag" which triggers some other planning and/or management actions. The trail segments with this "flag" should be placed back in the priorities sufficiently far so as to allow the extra planning necessary. This should not be difficult since trail segments in this category include only 10-20% of the total construction/reconstruction work in the BMWC. The manager should then look carefully at these trail segments with a soil scientist and develop alternatives. These alternatives might include:

(1). Relocation to avoid the poor soil area.

(2). Reconstruction using special techniques to resolve the problems (such as surfacing, soil cement, turnpikes, corduroy, etc). Some experimental work has recently been initiated in the BMWC to evaluate the effectiveness of new techniques to solve these problems (Henshaw, 1986).

(3). Resolve the problem through management actions such as changing the class of use (such as to hiker only), closing the trail, restricting the season of use, etc.

Once this analysis has been done, the appropriate decision can be made for a particular trail and the DATA TABLE can be updated. The project can then be placed in priority order as appropriate.

Priorities Based on Other Factors

The other major factor which would influence final trail location and standards is the effect on habitat needs of the grizzly bear. As discussed in the Methods section, this information is not currently available, but will be forthcoming in the near future. The current trail system has not significantly affected the grizzly bear population and the the US Fish and Wildlife Service ruled that implementation of the BMWC Visitor Recreation Action Plan will not jeopardize the grizzly bear. Therefore, this does not appear to be a major factor at this time. However, as trails are relocated and reconstructed, this information needs to be incorporated into the decision-making process. At present, this information should also be used as a "red flag" and appropriate wildlife biologist input should be obtained before relocating trails. This is probably most applicable to reconstruction projects in OC 1&2, since they have the potential to introduce more people into areas which currently may receive little use because of the poor trail system.

Another ranking factor which would be useful, particularly at the site-specific level is vegetation habitat type. This information is not currently available

but as planning and implementation of trail reconstruction projects proceed, it would be possible for managers to relate types of trail problems to the vegetation habitat types where particular problems occur. The habitat types could eventually become very good predictive tools of trail problems and would allow managers to easily determine on the ground the most suitable areas for trail location and maintenance in site-specific situations. The habitat type prevalent in an area represents the integration of all environmental factors at that particular site and would therefore help to predict such factors as wetness, soil texture, stoniness, etc. which affect the suitability of a particular location for trail construction and maintenance. This approach would eventually integrate trail construction and maintenance into the ecosystem concept of management. At present this is not a useful tool for setting priorities because of limited information. Therefore, this approach was not used to develop the priority list which follows. This potential approach is highlighted because information concerning habitat type could be gathered as trail problems are inventoried and corrected. Ultimately the information would then be available.

Trail Construction/Reconstruction Priority Recommendations for the BMWC

The previous sections have presented the applicablity of certain factors for setting priorities for trail construction/reconstruction work in the BMWC. In this section a recommended priority-setting process is presented and the actual list of priority trails which results from this process is presented. Basically the list was developed by setting some selection criteria which the computer could use to extract appropriate trail segments from the DATA TABLE. Then some of the "red flag" items were used to sort the list in priority order. The selection criteria and sorting process are as follows:

(1). All Trail segments requiring construction or reconstruction in OC Classes 3&4 were selected from the DATA TABLE.
(2). All trail segments requiring construction or reconstruction in OC Classes 1&2 which were tagged as particularly scenic, as a loop opportunity or as a National Recreation Trail were selected from the DATA TABLE.
(3). The list of trail segments which met the above criteria were separated into two groups by Ranger District. The first priority group listed includes all of the trails where reasonably firm cost estimates are currently available. This group was listed first in priority because much less ground review and planning is needed on these trails to develop a project plan and prepare a final cost estimate. The second group includes the trails segments which currently do not have a firm cost estimate.

(4). The trail segments within these groups were then sorted by Opportunity Class in descending order (OC 4 then OC 3 then OC 2 then OC 1).

(5). The trail segments on the Spotted Bear RD were then further sorted (within the Opportunity Class groups) by Transportation Category in descending order (TP 4, TP 3, TP 2, TP 1). The other Districts had insufficient Transportation Class information to use this as a sorting criterion.

(6). The trail segments within the above groups were then sorted one more time to place the segments crossing soils rated as having poor suitability for long term maintenance at the bottom of the group. These segments will require special planning as discussed above and this ranking will allow time for that planning.

The list of Trail Projects which follows in Table Four is the priority list of trail segments which results from the selection/sort process described above. These selected trail segments total 533 miles and a total of $3.3 million will be required to complete the necessary reconstruction. This work could be completed in a maximum of 19 years at current levels of investment on all Ranger Districts except the Spotted Bear RD. Even with this reduced list, completion would still require 48 years on the Spotted Bear RD at current investment levels.

It is well to remember at this point that the priority-setting process described above narrows the list to proportions which allows the highest priority projects to be completed within a reasonable time on most Ranger Districts; however, the process does not reduce the overall job of trail construction/reconstruction in the BMWC. The high-priority list represents somewhat less than half of the total construction/reconstruction job in the BMWC. Even this list cannot be completed on the Spotted Bear Ranger District within 20-30 years without a doubling of current investment. Also, on some of the other Districts, the OC 1&2 trails providing scenic and loop opportunities are probably not all inventoried and "tagged" in the DATA TABLE, so the actual high-priority list is probably somewhat larger than listed here. Clearly a strong need exists to focus additional investment in the trail system if the problem is ever to be totally resolved.

The high-priority list does, however, objectively highlight the projects which should be done first, regardless of the investment level. The list also allows the local manager to set priorities for inventory and advance planning in a systematic way that will allow detailed project plans to be prepared well in advance of construction. Therefore, this priority system will focus advance trail planning and inventory so the workload will be manageable and effective. Effective advance planning should help to ensure that completed projects will be cost-effective and will meet wilderness management objectives.

As stated above, this priority list was developed objectively from a set list of criteria and is intended to be used as the main framework for setting priorities. However, it is anticipated that site-specific factors will influence the position of individual trails on this priority list. The intent is not to produce an absolute priority list, but rather to use computer technology to narrow the overall job to the groups of trails which need attention first. This allows the manager to focus site-specific planning expertise on the highest priority groups of trails first and then to use site-specific information to set the final priority. For example, a trail with an extreme safety hazard would have priority over other types of problems. In fact it would be desirable in the future to identify and "tag" trails with extreme safety hazards in the Special Features (Sp_Features) column of the

DATA TABLE and place them as top priority in each trail priority group.

Local priority shifts may also occur because of such things as scheduling of several projects in one area to improve overall cost-efficiency. For example, it may be desirable to complete work in one area of the BMWC before moving crews/contractors to a totally different area. Final review of trail location related to grizzly bear habitat may also change priorities. Undoubtedly other examples exist, the point is that the computer list is valuable to place the trails in a reasonable priority order based on current management direction and specific resource concerns. The manager can then do some shiifting within this narrowed list to take care of site-specific problems. It is recommended that the selected groups be used as the basic framework for setting priorities so that the trail construction/reconstruction program remains coordinated with the BMWC Recreation Management Direction and the Bob Marshall Wilderness Trail Transportation Plan. The system is designed to be easily updated and the selection criteria listed above can be used to produce a new priority list whenever it is desired by the manager. It is recommended that the information be updated at least annually and the selection/sort criteria used to produce a list of priority projects that is updated at least annually.

TABLE FOUR: LIST OF PRIORITY TRAIL CONSTRUCTION/RECONSTRUCTION PROJECTS IN THE BMWC BY RANGER DISTRICT WITH TRAILS HAVING A FIRM COST ESTIMATE LISTED FIRST.

SWAN LAKE RANGER DISTRICT

Trail_Name	Trail_No	Trail_Length	Trail_Segment	Sp_Features	Soil_Rating_Const	Soil_Rating_Mtce	Opp_Class	Const_Class	Type_of_Work	Total_Cost_MD
Smith Creek MW	29	6.0	Entire Trail	"	"	"	3	D	Heavy Maintenance	5.0
	Total Miles =	6.0							Total Cost =	5.0

SPOTTED BEAR RANGER DISTRICT

Trail_Name	Trail_No	Trail_Length	Trail_Segment	Sp_Features	Soil_Rating_Const	Soil_Rating_Mtce	Opp_Class	Trans_Category	Const_Class	Type_of_Work	Total_Cost_MD
East Side So Fork	80	13.8	Meadow Cr to Black Bear	"	F	F	4	4	C	Spot reconstruction and heavy maintenance	22.1
East Side So Fork	80	8.0	Black Bear to Salmon Forks	"	G	F	4	4	C	Spot reconstruction and heavy maintenance	18.4
East Side So Fork	80	4.8	Salmon Forks to White River	"	G	F	4	4	C	Spot reconstruction, reroutes and heavy mtce.	8.2
East Side So Fork	80	8.2	White River to Big Prairie	"	G	F	4	4	C	Spot reconstruction and heavy maintenance	3.9
East Side So Fork	126	23.5	Big Prairie to Basin Creek	CD	G	F	4	4	C	Spot reconstruction and heavy maintenance	6.5
West Side So Fork	263	8.0	Black Bear to Salmon Forks	"	G	F	4	4	C	Spot reconstruction, reroutes and heavy mtce.	25.6
West Side So Fork	263	12.8	Salmon Forks to Big Prairie	"	G	F	4	4	C	Spot reconstruction and heavy maintenance	13.6
Flotilla Lake	215	2.0	Entire Trail	"	P	F	4	"	C	Remove roots,bog relocat,corduroy,drrge,turnpike	18.5
Stadler Creek	271	3.7	So Fk Tr 126 to Sec 6	Scenic_CD	G	F	3	4	C	Corduroy some bogs, minor relocation	32.8
Stadler Creek	271	1.7	Sec 6 through Sec 32	Scenic_CD	F	F	3	4	A	Extensive relocation/reconst,rock blasting, timber	36.8
Holly Creek	138	5.4	Entire Trail	CD	F	F	3	4	C	Spot reconstr,steep,erosion,blasting big rocks	21.3
Clack Cr.	160	2.4	River to Sec 26	CD	P	P	3	4	C	Reroutes, retread,700ft turnpike,waterbars,brush	13.0
Bowl Cr.	324	4.1	Jct Tr 116 to Middle Fk Tr	CD	P	P	3	3	C	100 waterbars, brushing,gabions,re-establish tread	34.8
	Total Miles =	98.4								Total Cost =	253.1
Big Salmon Creek	110	3.5	Sappho Cr. to Dart Cr.	"	F	F	4	4	D	Spot drainage work and waterbars	10.5
Big Salmon Creek	110	2.6	Dart Creek to Pendant	"	G	F	4	4	B	Reconstruction	23.4
Pendant Creek	457	4.5	Entire trail	"	G	F	4	4	B	Hvy erosion control,turnpike,spot relocation	40.5
West Side So Fork	35	2.3	Big Prairie to Gordon Creek	"	G	F	4	4	D	Heavy maintenance	3.3
Hahn Creek	125	3.2	Gordon Creek-Youngs Creek	"	P	P	4	4	D	Heavy maintenance	4.8
White River	112	2.1	Sec 15 to Sec 14	"	P	P	4	4	B	Land failure, total relocation/reconstruction	25.2
Big Salmon-Saskey Cr	110	3.9	Saskey Cr to Wild. bdry.	"	F	F	4	3	B	Heavy brush, erosion control,blasting	35.1
Hahn Creek	125	17.3	Upper portion of trail	"	F	F	3	4	D	Water bars, heavy tread work, brushing	123.0
White River	112	11.4	Sec 14 to Jct Tr 100	CD	G	F	3	4	D	Big rocks and ledges needing blasting	68.4
White River	112	1.0	Jct Tr 90 to Sec 17	CD	P	F	3	4	B	Excessive grades, erosion, relocation	20.0
White River	112	1.4	Sec 17 to Divide	CD	F	F	3	4	D	Rock removal and waterbar installation	2.8
Spotted Bear River	83	23.7	Remainder of Trail	CD	G	F	3	4	D	Spot relocation, some tread work,heavy mtce, cord.	83.0
Middle Fk East Side	155	8.6	Dairy to Porter Creek	"	F	F	3	4	C	Some bogs and some tread sloughing	75.9
Middle Fk East Side	155	4.5	Surprise Cr to Sec 34	"	P	P	3	4	B	Total relocation and/or major corduroy for bogs	99.0
Middle Fk East Side	155	1.3	Switchback Cr to Ringer Mtn	"	P	P	3	4	B	Horrible soils-relocation/corduroy for bogs	22.0
Gorge Creek	218	3.7	Above Tr. 693 intersection	"	F	F	3	3	D	Brushing,drainage,tread work,some relocation	25.3
Little Salmon Creek	29	7.8	Intsctn Tr 25 to Wild. Bdry.	"	F	F	3	3	B	Big timber, heavy blasting,relocate,7'deep erosion	156.0
Badger Pass Cutoff	447	2.1	Entire trail on SB RD	CD	F	F	3	3	B	Erosion contrl, rerouting around bogs, corduroys	21.0
Bowl Cr.	324	6.9	Remainder of trail	CD	P	P	3	3	B	Extremely bad bogs, total relocation/reconstruct	138.0
Cow Creek	175	7.8	Entire Trail	"	F	P	3	3	D	Some waterbars, spot relocation around bogs	46.8
Strawberry (Big Riv)	161	10.0	Entire Trail	CD	F	P	3	3	D	Spot bog reloc,short corduroy,some water bars	30.0
Gateway Gorge	322	5.3	Entire Trail	CD	P	P	3	3	D	Heavy Maintenance	15.3
Swanhurst Lake	693	2.0	Entire Trail	"	G	F	3	1	B	Heavy timber, boggy for nearly entire length	28.0

Upper Twin Creek	237	4.2	Head Creek to Jct Tr 329	"	F	F	3	"	B	13 creek crossings, relocation to avoid crossings	50.4
Upper Twin Creek	237	8.9	Jct Tr 329 to Road	"	G	F	3	"	D	Brushing, re-establish tread, some bogs, hvy mtce.	26.7
Schafer Creek	327	3.0	West Fk to Top of Divide	"	P	P	3	"	B	Erosion, bad clay (relocate and reconstruct)	48.0
Morrison Creek	154	7.1	Bdry to Jct Lodgepole Tr	"	P	P	3	"	B	Poor soil, bogs, total reconstruction	120.7
Morrison Creek	154	2.1	Lodgepole Tr to River Tr	"	P	P	3	"	D	Spot reroutes around bogs	8.4
Picture Point	226	2.2	Entire Trail	Scenic	F	F	2	2	G	Steep & rocky, extensive relocation & blasting	33.0
Picture Ridge	107	17.8	Entire Trail (scenic loop)	Scenic Loop	F	G	2	2	I	Waterbars, hvy mtce,-relocation around steep areas	44.8
Doctor Lake	291	0.5	Sec 11 to Lake	Scenic	G	F	2	1	G	Major bogs,spot relocr(repair may require use contl	3.5
Basin-Pentagon Cabin	177	5.0	Entire Trail	Scenic_CD	F	F	1	4	I	Spot reconstr,blasting,tread work,steep (Scenic)	50.0
Cabin Creek	205	4.0	Entire Trail	Scenic Loop	F	F	1	3	I	Lots of water bars,spot tread work,scenic loop imp	12.0
Dolly Varden-Pent.	173	12.4	Sec 22 to Jct Tr 189	Scenic	G	F	1	3	G	Bogs,steep,severe erosion,blasting, dangerous	248.0
Garnet	111	1.4	Intsct. Tr 110 to Salmon Point	Scenic	F	F	1	2	I	Very Scenic Trail, logged in 1980	7.0
Kid Lookout	628	4.6	Entire Trail	Scenic Loop	F	F	1	2	G	Poorly defined,very steep, blasting, scenic loop	82.8
Blackfoot Divide	278	0.8	Intsctn Tr 283 to center Sec 1	Scenic	F	F	1	2	G	Major reconstr, steep, deep gullies, blasting	8.0
Blackfoot Divide	278	1.1	Toungs Pass Area	Scenic	F	F	1	2	G	major reconstr, steep, deep gullies, blasting	11.0
Damnation Trail	122	5.0	Entire Trail	Scenic	F	F	1	2	G	Blasting,excessive rock,excessive grade (Scenic)	85.0
Silvertip Creek	89	4.3	Spotted Bear River to Sec 10	Scenic Loop	F	F	1	2	G	Big boulders, exposed roots, steep, erosion, bogs	86.0
Pot Mountain	359	6.2	Jct Tr 333 to Jct TR 85	Loop	F	F	1	2	I	Heavy mtce, re-establish tread	12.4
Gateway Point	262	4.5	Entire Trail	Scenic	F	F	1	2	I	Heavy Maintenance-Logging Out (Scenic)	6.0
Bar Creek	140	2.8	Bdry. to Sec 10	Scenic_CD	F	P	1	2	G	Steep, extremely so at upper end, bad erosion	33.6
Middle Fk Wall Creek	229	8.1	Entire Trail	Scenic Loop	F	P	1	2	I	Spot rocky,steep areas (hvy blasting),hvy clearing	125.0
	Total Miles =	237.9								Total Cost =	2147.3
	GRAND TOTAL SPOTTED BEAR RD =	336.3								GRAND TOTAL SPOTTED BEAR RD =	2400.4

HUNGRY HORSE RANGER DISTRICT

Trail_Name	Trail_No	Trail_Length	Trail_Segment	Sp_Features	Soil_Rating_Const	Soil_Rating_Mtce	Opr_Class	Const_Class	Type_of_Work	Total_Cost_RD
Vinegar-Moose	260	1.7	Tr 323 to Tr 167	"	F	F	3	A	Major reconstruction	17.0
Devil Creek	167	2.8	Sec 2 to Tr 489	"	F	F	3	A	Reconstr/reloc, major rock (slab),drainage,steep	32.0
Granite Creek	156	7.0	Entire Trail	"	G	F	3	A	Const to new TR, reduce grade,major drainage	140.0
	Total Miles =	11.5							Total Cost =	189.0
Essex Creek	151	2.0	Trailhead to Fks Essex Creek	"	F	F	3	D	Hvy brushing, holes, stumps, rock removal	3.0
Long Creek	166	3.6	Tr 155 to Tobogan Cr	"	G	F	3	D	Heavy mtce,brushing and spot tread repair	5.4
Cy Creek	332	2.4	Tr 155 to Sec 11	"	G	F	3	D	Heavy maintenance-spot reconstruction	4.7
Grand Ridge	329	7.4	Entire Trail	"	F	F	3	D	Heavy brush,bent trees from snow, old clearcut	11.1
Marion Lake	150	3.0	Entire Trail	"	F	F	3	D	Brush work and spot reconstruction	4.5
Spruce Crossing	65	1.3	Entire Trail	"	G	F	3	D	Hvy Mtce, remove slough, retread in short sections	2.0
Castle	209	1.5	Entire Trail	"	F	F	3	D	Wet trail,probably turnpike or corduroy,hvy use tr	25.0
Big River	155	5.2	Hwy 2 to Spruce Park	"	G	F	3	D	Minor tread work, minor rock work, some brushing	5.0
Big River	155	10.3	Spruce Park to 25 Mile	"	F	F	3	D	Spot reconstr, stabilize trail on a slump	10.0
Edna Creek	489	3.2	Tr 155 to Sec 4	"	F	F	3	D	Heavy Maintenance (see cost for TR 260)	4.8
Edna Creek	489	0.8	Sec 4 to Tr 167	"	F	F	3	9	Reconstr to reduce grade,drainage,not much rock	8.2
Devil Creek	167	1.5	Tr 489 to Tr 260	"	F	F	3	D	Heavy Maintenance	2.1
Elk Lake	0	1.0	Tr 167 to Elk Lake	"	F	F	3	B	New Construction-included in cost for trail 260	30.0
	Total Miles =	43.4							Total Cost =	96.8
	GRAND TOTAL HUNGRY HORSE RD =	54.9							GRAND TOTAL HUNGRY HORSE RD =	285.8

LINCOLN RANGER DISTRICT

Trail_Name	Trail_No	Trail_Length	Trail_Segment	Sp_Features	Soil_Rating_Const	Soil_Rating_Mtce	Opp_Class	Const_Class	Type_of_Work	Total_Cost_MD
Landers Fork	438	16.9	Upper and Lower ends of Trail	CD	G	F	3	C	Trail grading	10.3
	Total Miles =	16.9							Total Cost =	10.3
Rainline	481	10.2	Webb Lake to Camp Creek	"	G	F	4	D	Erosion control, waterbars	6.0
Heart Lake	424	0.5	West end of Heart Lake	"	G	F	4	D	Erosion control, waterbars	1.0
	Total Miles =	10.7							Total Cost =	7.0
	GRAND TOTAL LINCOLN RD =	27.6							GRAND TOTAL LINCOLN RD =	17.3

ROCKY MOUNTAIN RANGER DISTRICT

Trail_Name	Trail_No	Trail_Length	Trail_Segment	Sp_Features	Soil_Rating_Const	Soil_Rating_Mtce	Opp_Class	Const_Class	Type_of_Work	Total_Cost_MD
No Fk Sun River NW	201	10.0	Around Gibson Reservoir	Scenic	"	"	4	C	Rock removal 3 times/yr, cribbing repair, hvy mtce	10.0
So Fk Sun River	202	0.5	Slump area near Pretty Prairie	"	P	P	4	A	Reconstruct trail around slump	2.5
Two Medicine Riv NW	101	18.5	Entire Trail	CD	"	"	3	H	Spot reloc/reconstr, drainage	27.8
So Fk Badger Cr NW	104	0.5	Crucifixion Cr crossing	"	"	"	3	A	Major reconstr-blast cliff, reconstruct tread	3.0
South Wall	175	5.0	Larch Hill Pass to hd N Fk Sun	Scenic_CD	G	F	3	C	Bog problems, spot corduroy to solve	25.0
Indian Creek	211	1.5	Upper portion of trail	CD	F	F	3	A	Tread repair,major rock blasting, erosion control	5.5
Jakie Creek	214	1.0	Lower trail to Sun River	"	G	F	3	C	Steep, needs switchbacks	5.5
Headley Creek	226	1.1	Lower mile of trail	CD	F	F	3	A	Reconstr/reloc, bogs, rock, corduroy	5.5
Half Moon Creek	216	0.5	Upper end of trail	Scenic_CD	G	G	3	A	Relocate to reduce grade	5.0
Route Creek	108	2.1	Route Cr Pass to end of trail	CD	P	P	3	C	Spot reloc to eliminate steep spots,lt clearing	9.0
E Side Sun River	109	7.7	Entire Trail	"	F	P	3	C	Spot native bridges, drain bogs, corduroy, stumps	8.0
No Fk Sun River	110	3.0	Sun River Pass to Round Park	CD	F	P	3	C	Brushing, hvy mtce,drainage,short reroutes	4.5
Beartop Lookout	129	2.8	Sec 34 to Lookout	Scenic	P	P	3	F	Total reconstruction-steep grades	13.0
Red Shale	130	7.0	Entire Trail to North Wall	CD	F	P	3	H	Replace native material bridges (8) otherwise OK	13.0
Headquarters	165	4.7	Straddles Headquarters Pass	"	F	P	3	A	Replace cribbing, drilling & blasting in pass	6.5
Dearborn River	206	1.5	Upper end of trail	CD	P	P	3	C	Minor reloc,drainage,steep (switchback or two)	2.5
Arsenic Creek	208	1.0	Trail inside Wilderness	"	P	P	3	A	Reconstruction of one mile to eliminate steep gr	8.0
Elk Calf NRT NW	137	6.9	High Country near Elk Calf Mtn	NRT_CD	"	"	2	F	Total reconstr, steep and boggy	75.9
North Fk Dupuyer Cr	124	1.7	Lower mile of trail	Scenic	F	F	2	H	Spot repair of flood washouts & washed cr crossing	5.1
Half Moon Creek	216	1.0	Dearborn River end of Trail	Scenic	G	F	2	H	Heavy Maintenance	1.0
	Total Miles =	78.0							Total Cost =	236.3
Petty-Crown	232	8.1	Entire Trail	Scenic	F	F	2	G	Steep, rocky, difficult to relocate, very scenic	97.2
Moonlight Pk	132	5.0	Remainder of Trail	Scenic	F	F	1	G	Steep, rerouting, erosion cntrl,clearing, blasting	66.0
Blind Cr-Tubby Cr	171	6.0	Entire Trail	Scenic	F	F	1	G	Very Steep-Very Scenic, light use	32.0
	Total Miles =	19.1							Total Cost =	195.2
	GRAND TOTAL ROCKY MOUNTAIN RD =	97.1							GRAND TOTAL ROCKY MOUNTAIN RD =	431.5

SEELEY LAKE RANGER DISTRICT

Trail_Name	Trail_No	Trail_Length	Trail_Segment	Sp_Features	Soil_Rating_Const	Soil_Rating_Mtce	Opp_Class	Const_Class	Type_of_Work	Total_Cost_MD
Hobnail Too	32	"	Some trail segment	CD	G	F	4	A	Two major bridges (90ft span) across N Fk Blackfoot	60.0
Dry Fork	31	3.2	Sec 30, Sec 3, Sec 11 (3 segs)	CD	P	P	4	A	Reloc(above out of bottom),waterbars,talus,mod clrg	30.0
Lake Otatsy MW	61	2.4	Lower portion of trail	"	"	"	3	C	One 30 ft bridge may need replacement	15.0
Lake Otatsy MW	61	1.3	Lake Otatsy area	"	"	"	3	A	Corduroy installation through bogs	25.0
Falls Canyon MW	16	1.0	Lake Otatsy area	"	"	"	3	A	Corduroy through bogs-treated deck- $50/ft	24.0
Falls Canyon	16	0.5	Area near Jct w/Dry Fk Tr	"	P	P	3	A	Reroute for 200 yds to avoid bogs	2.0
	Total Miles =	8.4							Total Cost =	156.0
Ronture Creek MW	27	13.3	Remainder of trail	"	"	"	4	D	Put on grade, reconstr, blast rocks, erosion cntrl	10.0
Hobnail Too	32	14.5	TH to Carmichael Cabin	CD	G	F	4	D	Heavy alce,tread imprvt, 20% of work is waterbars	10.0
	Total Miles =	27.8							Total Cost =	20.0
GRAND TOTAL SEELEY LAKE RD =		36.2							GRAND TOTAL SEELEY LAKE RD =	176.0
									GRAND TOTAL BOB MARSHALL WILDERNESS COMPLEX =	3273.2

GRAND TOTAL BOB MARSHALL WILDERNESS COMPLEX = 532.6 Miles

Recommended Inventory and Planning Priorities

Priorities for advance planning and inventory work are defined for the most part by the priorities for construction/reconstruction and, as such, are very similar to the priority list presented in the previous section. However, the list of trail construction/reconstruction priorities does not include trails currently listed in the DATA TABLE as being in "Unknown Condition" (Construction Classes E and J). Since the condition of these trails is currently unknown and no estimate can be made of needs until inventory information is available, these trails would have high priority for inventory. One exception would be the trails listed earlier which the Bob Marshall Wilderness Transportation Plan has scheduled for abandonment to protect grizzly habitat. The trails in unknown condition (minus the trails scheduled for abandonment) are listed below in Table Five. It is recommended that these trails be given high priority for inventory work. In addition it is recommended that the trails listed as high priority for construction/reconstruction in Table Four be given high priority for detailed project planning in advance of construction.

In most cases this advance planning and inventory work can be done with existing Ranger District personnel. However, the number of trails which need advance inventory and planning on the Spotted Bear RD may suggest that special emphasis be given to project planning there. Significant additional investment will need to be focused there to complete trail construction/reconstruction work and this will require additional effort in "out-front" planning. Even additional funding from the Bob Marshall Foundation will not be helpful unless additional planning is completed so the funds can be used effectively. Currently the Spotted Bear has the largest number of trails in the "unknown condition" category and has firm cost estimates on only 7% of the trail segments which are identified as needing reconstruction. If additional funding becomes available through the Bob Marshall Foundation, the Rocky Mountain RD may also need additional emphasis and attention to preparation of detailed project plans and contract packages.

Table Five: Trails in Unknown Condition Sorted by Opportunity Class

Ranger_District	Trail_Name	Trail_No	Trail_Length	Sp_Features	Soil_Rating_Mtce	Opp_Class
F10D01	Holland Lookout NW	42	3.0	"	"	3
F10D01	Big Salmon NW	110	2.5	"	"	3
F10D04	Spotted Bear River	83	1.5	"	F	3
F10D04	Trickle Creek	115	5.5	"	F	2
F10D04	Bartlett Mtn.	132	3.0	"	F	2
F10D04	Hodag Ridge	701	7.0	Scenic	F	2
F10D04	Black Bear Creek	220	13.8	Scenic	F	2
F10D04	Mid Creek	103	2.5	Loop	F	2
F10D04	Meadow Mtn	56	4.6	"	F	2
F10D04	Harrison Creek	584	3.3	Loop	F	2
F10D04	Winter Creek	317	5.0	"	F	2
F10D04	Winter Pt-Slideout P	729	6.6	"	F	2
F10D04	Cap Mtn	338	2.5	Scenic	F	2
F10D04	Tango Point	455	2.2	"	F	1
F10D04	Otter Creek	279	7.0	"	F	1
F10D04	Fiction Creek	272	2.8	"	F	1
F10D04	Sandstone Creek	743	2.7	"	F	1
F10D04	Brownstone Creek	465	1.0	"	F	1
F10D04	Silvertip Creek	89	5.8	Scenic Loop	F	1
F10D04	Slim Creek	261	2.1	"	P	1
F10D04	Dean Creek	87	8.4	"	P	1
F10D04	So Fk Nanny Creek	93	4.0	"	F	1
F10D04	Bradley Lake	201	6.5	"	F	1
F10D04	Capitol Mtn	522	4.0	"	P	1
F10D04	Trail Creek	216	7.4	"	P	1
F10D06	Granite-Morrison	589	1.4	"	F	3
F10D06	Java Creek	254	2.5	"	F	2
F10D06	Deerlick	145	2.0	"	F	1
F10D06	Granite-Morrison	589	3.1	"	F	1
F16D06	Fenn Mountain NW	88	1.0	"	"	2
F16D06	Sarbo Creek	377	3.4	"	G	1
F16D06	Evans Peak	361	2.5	"	F	1
F16D06	Cave Creek	1217	2.1	Scenic	F	1
F16D06	Amphitheatre	218	1.3	Loop	F	1
F16D06	Middle Fk Monture NW	371	3.4	"	"	1
F16D06	Center Ridge NW	246	11.1	"	"	1
F16D06	Grizzly Basin NW	409	7.6	"	"	1
F16D06	Jenny Saddle NW	141	1.2	"	"	1
		Total Miles	157.3			

Continental Divide Trail

The final route selection for the Continental Divide National Scenic Trail must be made in 1987 so that actual route marking can begin in 1988. Therefore, Table Six was prepared which displays key criteria that can be used to help the managers make a final decision on the location of the trail. As discussed previously, the trail segments which are identified as potential alternative routes for the Continental Divide Trail are "tagged" in the DATA TABLE. This allows the information regarding these segments to be easily retrieved for use in selecting the final route.

In some areas only one route has been identified, but in other areas as many as four alternatives exist. The trail segments in Table Six are listed in order by Ranger District and by trail number to facilitate locating the information needed for any particular trail. Once a particular trail is located in the table, the manager can then look at any attributes (such as cost, opportunity class, construction/reconstruction needs, soil rating, etc) which are needed to help in selecting a preferred route.

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Table Size Trail Segments Identified as Alternative Routes for the Continental Divide National Scenic Trail Sorted by Ranger District and by Trail Number

Ranger_District	Trail_Name	Trail_No	Trail_Segment	So_Features	Soil_Rating_Mtce	Dop_Class	Trans_Category	Const_Class	Type_of_Work	Total_Cost_MD
F10D04	East Side So Fork	80	White River to Big Prairie	CD	F	4	4	C	Spot reconstruction and heavy maintenance	3.9
F10D04	Spotted Bear River	83	Jct. Tr 112 to above Hy Lake	CD	F	3	-	E	Unknown Condition	-
F10D04	Spotted Bear River	83	Remainder of Trail	CD	F	3	4	B	Spot relocation, some tread work,heavy mtce, cord.	83.0
F10D04	White River	112	River trail 126 to Sec 15	CD	P	4	4	K	Routine Maintenance	0.0
F10D04	White River	112	Sec 15 to Sec 14	CD	P	4	4	B	Land failure, total relocation/reconstruction	25.2
F10D04	White River	112	Sec 14 to Jct Tr 100	CD	F	3	4	D	Big rocks and ledges needing blasting	68.0
F10D04	White River	112	Jct. Tr 100 to Jct Tr 90	CD	F	3	4	K	Routine Maintenance	0.0
F10D04	White River	112	Jct Tr 90 to Sec 17	CD	F	3	4	B	Excessive grades, erosion, relocation	20.0
F10D04	White River	112	Sec 17 to Divide	CD	F	3	4	D	Rock removal and waterbar installation	2.8
F10D04	Sun River Pass	116	Entire Trail on SR RD	CD	P	3	4	K	Routine Maintenance	0.0
F10D04	East Side So Fork	126	Big Prairie to Dry Fork Divide	CD	F	4	4	C	Spot reconstruction and heavy maintenance	6.5
F10D04	Holly Creek	138	Entire Trail	CD	F	3	4	C	Spot reconstr,steep,erosion,blasting big rocks	21.3
F10D04	Rapid Creek	139	Sec 22 to So Fk Tr 126	CD	F	2	3	K	Steep sections, some bogs, handle with mtce.	0.0
F10D04	Rapid Creek	139	Wild. Bdry to Sec 22	CD	F	2	3	G	Very steep, rock blasting,relocation and reconst.	57.8
F10D04	Badger Pass Cutoff	147	Entire trail on SR RD	CD	F	3	3	B	Erosion control, rerouting around bogs, corduroys	21.0
F10D04	Morrison Creek	154	Bdry to Jct Lodgepole Tr	CD	P	3	-	B	Poor soil, bogs, total reconstruction	120.7
F10D04	Morrison Creek	154	Lodgepole Tr to River Tr	CD	P	3	-	D	Spot reroutes around bogs	8.4
F10D04	Middle Fk East Side	155	Bdry to Porter Creek	CD	P	3	4	D	Some bogs and some tread sloughing	25.8
F10D04	Middle Fk East Side	155	Porter Cr to Surprise Cr	CD	F	4	4	K	Routine Maintenance	0.0
F10D04	Middle Fk East Side	155	Surprise Cr to Sec 34	CD	P	3	4	B	Total relocation and/or major corduroy for bogs	90.0
F10D04	Middle Fk East Side	155	Sec 34 to Switchback Cr	CD	F	3	4	K	Routine maintenance	0.0
F10D04	Middle Fk East Side	155	Switchback Cr to Ringer Mtn	CD	P	3	4	B	Horrible soils-relocation/corduroy for bogs	26.0
F10D04	Middle Fk East Side	155	Ringer Mtn to Jct Bowl Cr.	CD	P	3	4	K	Routine Maintenance	0.0
F10D04	Strawberry (Big Riv)	161	Entire Trail	CD	P	3	3	D	Spot bog reloc,short corduroy,some water bars	30.0
F10D04	Doily Varden-Pent.	173	Tr 83 to Sec 22	CD	F	2	4	K	Routine Maintenance	0.0
F10D04	Basin-Pentagon [illegible]	177	Entire Trail	Scenic_CD	F	1	4	I	Spot reconstr.blasting,tread work,steep (Scenic)	50.0
F10D04	Cano Creek	233	Entire Trail	CD	F	2	3	I	Brushing and erosion control, some blasting	15.9
F10D04	Gateway Gorge	322	Entire Trail	CD	P	3	3	D	Heavy Maintenance	15.3
F10D04	Bowl Cr.	324	Jct Tr 116 to Middle Fk Tr	CD	P	3	3	C	100 waterbars, brushing,gabions,re-establish tread	34.0
F10D04	Bowl Cr.	324	Remainder of trail	CD	P	3	3	B	Extremely bad bogs, total relocation/reconstruct	138.0
F10D04	E. Fk Strawberry	371	Entire Trail	CD	P	2	3	H	70% pitch,rutted, parallel trls,horse killer	15.0
F10D04	Kevan Mtn	732	Entire Trail	CD	F	2	4	K	Routine Maintenance	0.0
F10D06	Morrison Creek	154	Trailhead to Dist Bdry	CD	F	3	-	K	Routine Mtce - Recently reconstructed	0.0
F12D04	Middle Fk	422	Entire Trail	CD	F	2	-	K	Routine Maintenance	0.0
F12D04	Red Ridge	432	Middle Fk Tr to top of ridge	CD	F	2	-	I	Reloc/reconstr in spots to reduce grade	5.0
F12D04	Red Ridge	432	Remainder of Trail	CD	F	2	-	K	Routine Maintenance	0.0
F12D04	Landers Fork	438	Upper and Lower ends of Trail	CD	F	3	-	C	Trail grading	10.3
F12D04	Continental Divide	440	Valley of the Moons segment	CD	F	2	-	H	Spot relocation, 90% of work is grubbing & grading	7.0
F12D04	Continental Divide	440	Remainder of Trail	CD	F	2	-	K	Routine Maintenance	0.0
F12D04	Sheep Creek	441	Jct. Sheep Cr Tr & Cont Div Tr	CD	F	2	-	G	1/4 mile reconstr, heavy clearing, grading	5.0
F12D04	Sheep Creek	441	Remainder of Trail	CD	F	2	-	K	Routine Maintenance	0.0
F12D04	Sheep Creek	441	Bighorn Creek Area	CD	G	2	-	F	Reconstr, grading, loose material, min clearing	11.0
F12D04	Middle Fk	479	Upper end of Tr -joint w/L&C	CD	F	2	-	F	Relocation, grubbing, waterbars,(L&C cost included	3.1
F12D04	Middle Fk	479	Remainder of trail	CD	F	3	-	K	Routine Maintenance	0.0
F12D04	Mainline	481	Entire Trail outside Wild Bdry	CD	F	4	-	K	Routine Maintenance	0.0
F12D04	Mainline	481	Wild Bdry to Webb Lake	CD	F	4	-	K	Routine Maintenance	0.0
F15D01	Two Medicine Riv HW	101	Entire Trail	CD	-	2	-	H	Spot reloc/reconstr, drainage	27.8
F15D01	No Fk Badger Cr HW	103	Entire Trail	Scenic_CD	-	2	-	K	Routine Mtce -Very Scenic trail	0.0
F15D01	So Fk Birch Creek	105	Entire Trail	Scenic_CD	F	3	-	K	Routine Mtce-Avalanche problems- Very Scenic	0.0
F15D01	No Fk Teton River	107	Entire Trail	CD	F	3	-	K	Routine Maintenance	0.0
F15D01	Route Creek	108	Route Cr Pass to end of trail	CD	P	3	4	C	Spot reloc to eliminate steep spots,Tl clearing	9.0
F15D01	No Fk Sun River	110	Sun River Pass to Round Park	CD	P	3	4	L	Brushing, hvy mtce,drainage,short reroutes	4.5
F15D01	No Fk Sun River	110	Remainder of trail	CD	P	3	4	K	Routine Maintenance	0.0
F15D01	Rock Creek	[illegible]	Entire Trail	CD	F	3	4	K	Routine Maintenance	0.0
F15D01	West Fk Teton [illegible]	114	Entire Trail	CD	-	3	-	K	Heavy use-high maintenance, Routine maintenance	0.0
F15D01	Open Fork	116	Sun River to Sec 22	CD	P	2	4	H	Boggy, mostly reroutes, some corduroy	8.5

Table Six: Trail Segments Identified as Alternative Routes for the Continental Divide National Scenic Trail Sorted by Ranger District and by Trail Number

Ranger_District	Trail_Name	Trail_No	Trail_Segment	Sp_Features	Soil_Rating_Mtce	Opp_Class	Trans_Category	Const_Class	Type_of_Work	Total_Cost_MD
F15001	Open Fork	116	Sec 22 almost to N Wall Tr	CD	F	2	4	K	Routine Maintenance	0.0
F15001	Washboard-Wrong CrNW	117	Tr 114 to Jct Tr 157	CD	"	1	2	K	Routine Maintenance-reconstructed & in good shape	0.0
F15001	Washboard-Wrong Cr	117	McDonald Cr to end of Trail	CD	P	1	3	K	Routine Maintenance	0.0
F15001	Red Shale	130	Entire Trail to North Wall	CD	P	3	4	H	Replace native material bridges (8) otherwise OK	13.0
F15001	Elk Calf NRT NW	137	High Country near Elk Calf Mtn	NRT_CD	"	2	"	F	Total reconstr, steep and boggy	75.9
F15001	Elk Calf NRT NW	137	Remainder of trail	NRT_CD	"	2	"	K	Routine Maintenance	0.0
F15001	Elbow Creek NW	145	Entire Trail	CD	"	1	"	K	Routine Mtce- Reconstructed in 1975	0.0
F15001	Muskrat Creek NW	147	Entire Trail	CD	"	3	"	K	Routine Mtce-Reconstructed in 1975	0.0
F15001	Bruce Cr-Crazy Cr	152	Entire Trail	Scenic_CD	F	2	"	K	Routine Mtce-reconst 1974-very scenic	0.0
F15001	Nesbit-Olney	157	Remainder of Trail	CD	P	3	3	K	Routine maintenance-recently reconstructed	0.0
F15001	Nesbit-Olney	157	Wilderness Bdry through Sec 23	CD	G	1	3	H	Relocation to avoid steep spots & washouts,erosion	8.5
F15001	North Wall	175	Open Creek to Red Shale	Scenic_CD	F	2	4	K	Routine Mtce, Reconstr 1986, avalanche problems	0.0
F15001	South Wall	175	Larch Hill Pass to hd N FK Sun	Scenic_CD	F	3	4	C	Boy problems, spot corduroy to solve	25.0
F15001	So Fk Sun River	202	Remainder of Trail	CD	P	4	4	K	Routine Maintenance	0.0
F15001	West Fk Sun River	203	Entire Trail	CD	F	3	4	K	Routine maintenance-heavy because of heavy use	0.0
F15001	Dearborn River	206	Upper end of trail	CD	P	3	"	C	Minor reloc,drainage,steep (switchback or two)	2.5
F15001	Dearborn River	206	Remainder of Trail	CD	P	3	"	K	Routine Maintenance	0.0
F15001	Blacktail-Landers Fk	247	Entire Trail	CD	F	2	"	F	Steep (old sheep driveway) reloc/roc, hvy timber	19.8
F15001	Ahorn Creek	209	So Fk to E Fk Ahorn	CD	F	2	3	K	Routine Maintenance	0.0
F15001	Ahorn Creek	209	E Fk Ahorn to Pearl Basin	CD	P	2	3	F	Boggy, washes (spruce bottom)	33.3
F15001	Ahorn Creek	209	Above Pearl Basin	CD	F	2	3	K	Routine Maintenance	0.0
F15001	Indian Creek	211	Lower portion of trail	CD	F	3	4	K	Routine Maintenance	0.0
F15001	Indian Creek	211	Upper portion of trail	CD	F	3	4	A	Tread repair,major rock blasting, erosion control	5.5
F15001	Straight Creek	212	Entire Trail	Scenic_CD	F	3	"	K	Routine maintenance- lots of rock removal-scenic	0.0
F15001	Half Moon Creek	216	Upper end of trail	Scenic_CD	G	3	"	A	Relocate to reduce grade	5.0
F15001	E Fk Ahorn Creek	225	Ahorn to top of E Ahorn	CD	F	1	3	F	Avalanche debris, boggy, heavy timber (reconstr)	27.0
F15001	E Fk Ahorn Creek	225	Hoadley Cr drainage	CD	P	1	3	K	Routine Maintenance	0.0
F15001	Hoadley Creek	226	Lower mile of trail	CD	F	3	4	A	Reconstr/reloc, bogs, rock, corduroy	5.5
F15001	Hoadley Creek	226	Remainder of Trail	CD	F	3	4	K	Routine Maintenance	0.0
F15001	Green Fork	228	Entire Trail	Scenic_CD	F	2	"	K	Routine Maintenance- very scenic	0.0
F15001	Scapegoat Mtn	234	Entire Trail	Scenic_CD	G	2	"	K	Routine Maintenance - Very Scenic	0.0
F15001	Observation Pass	246	Entire Trail	CD	F	2	4	H	Heavy mtce, spot bogs, grade improvement	12.5
F15001	Elbow Pass	248	Over top of Pass	CD	F	2	"	F	Total reloc/reconstr-steep grades, slumps, etc	11.0
F15001	Elbow Pass	248	Remainder of Trail	CD	F	2	"	H	Spot reloc/reconstr	4.0
F15001	Green Fork Cutoff	279	Entire Trail	CD	G	2	"	H	Blasting of rocks, spot reconstr, Very Scenic	2.3
F16006	Dry Fork	31	Sec 30, Sec 3, Sec 11 (3 segs)	CD	P	4	"	A	Reloc(move out of bottom),waterbars,talus,mod clrg	30.0
F16006	Dry Fork	31	Remainder of trail DC 4	CD	P	4	"	K	Routine Maintenance	0.0
F16006	Dry Fork	31	Jct Tr 31.1 to Hobnail Tun	CD	F	1	"	K	Routine Maintenance	0.0
F16006	Dry Fork	31	Upper mile of trail	CD	G	1	"	I	Tread repair,waterbars	3.0
F16006	Hobnail Tom	32	TH to Carmichael Cabin	CD	F	4	"	D	Heavy mtce,tread imprv, 20% of work is waterbars	10.0
F16006	Hobnail Tom	32	Same trail segment	CD	F	4	"	A	[illegible] major bridges (90ft span) across N Fk Blackfoot	60.0
F16006	Hobnail Tom	32	N Fk Blkft-base Dobroda Pass	CD	F	2	"	K	Routine Maintenance	0.0
F16006	Cooney Creek	406	Lower 3 miles of trail	CD	F	1	"	K	Routine Maintenance	0.0
F16006	Cooney Creek	406	Upper portion of trail	CD	F	1	"	G	Total reconstruction	22.5

Maintenance and Future Use of Trail Data

A major objective of this project is to develop a system which is flexible and can be easily updated and used at the Ranger District by local managers. The preprogrammed DATA TABLE software provides for this. Any updating can easily be done at the District provided a minimum amount of initial training is given to Ranger District personnel. Therefore, it is recommended that the portion of the DATA TABLE applicable to each District be mailed electronically for use at the District and that the author provide initial training to the appropriate resource assistants/trail managers in the use and updating of the data.

It will also be necessary to maintain one central data base which contains the data for the whole Bob Marshall Wilderness Complex. It is recommended that this Data Base be maintained in the Regional Office Recreation and Lands Division. Each year at a given time (December or January) each District could electronically mail their updates and corrections to the Regional Office for updating the master data base.

To maintain flexibility in use of the data, it would be desirable if District personnel learned to write PRESENT queries to develop reports from the DATA TABLE. With this skill, the local manager can extract any information desired from the DATA TABLE at any time and in nearly any format. This skill is more difficult to learn than the pre-programmed commands that are included in the DATA TABLE program itself, but greatly increase flexibility in using the data. Those queries which have already been written for use in this project, and which have general applicability, will be provided to the local managers as a first step in this effort. Appendix IV lists these queries and provides instructions on their use. However, it is still recommended that the managers acquire skill in use of the PRESENT report writer.

Updating the maps developed as part of this project will also be necessary on a regular basis. One method of completing this updating work in an efficient manner is to use Geographic Information Systems (GIS) technology. The Flathead, Lewis and Clark, and Helena NFs are currently implementing GIS technology for use in other resource areas. This technology is designed to electronically store, update and provide analysis of information contained on maps. Therefore, it is recommended that the maps be digitized and entered into the Geographic Information System on each Forest. In this way as conditions change, the information can be updated electronically and new maps printed almost immediately. The GIS also provides a very accurate method of measuring distances on maps and would eliminate the need for planimetering distances in the future. The technology also provides the capability to electronically overlay different trail segments on grizzly bear habitat maps, opportunity class maps, soil maps, etc., and, therefore, provides very powerful analysis capabilities for planning of future trail projects.

In summary it is recommended that the data be maintained in electronic form on the Districts and Forests involved, except for the master DATA TABLE. The map information will be stored on each of the Forests in a Geographic Information

System and the other data will be maintained on each Forest and District in a local DATA TABLE. It is also recommended that training be provided initially in the use of the DATA TABLE and PRESENT software and that local managers become proficient in their use.

One final recommendation relates to potential for use of this material in providing public information. Receptionists who have seen the trail condition maps produced for this project have asked that the maps be made available to them to help in answering inquiries about the condition of trails in the BMWC. This use was not envisioned at the beginning of the project, but could help to fill some public information needs. Use in this fashion would require that the maps be updated on a regular basis and would be another reason to digitize and electronically update them on a regular basis. The receptionists could also be trained to access the DATA TABLE for specific information on the status of individual trails. Use for this purpose should be investigated further.

SUMMARY OF RECOMMENDATIONS

Recommendations included in this report are summarized for easy reference in this section. The analysis in support of the recommendations has been presented earlier and will not be reiterated here.

(1). It is recommended that the prioritized list in Table Four be used as the framework for setting trail construction/reconstruction priorities in the BMWC. The list is closely tied to the BMWC Recreation Management Direction and provides for integration of other wilderness resources in making decisions about individual projects.

(2). It is recommended that the same list (Table Four) coupled with the list of trails in unknown condition (Table Five) be used as the framework for setting inventory and advance planning priorities.

(3). While it is recommended that the local managers use the list in Table Five as the primary framework for setting trail construction/reconstruction priorities, it is also recognized that the described priority-setting process is most useful for developing priority groups of trails. Site-specific factors not contained in the computer DATA TABLE will affect the absolute priority order of a given trail segment. It perhaps should be stressed that the computer analysis is a tool to provide managers with information to help make decisions, not the decision-making process itself.

(4). It is recommended that the soils information in this report be used primarily to "red flag" poor soil areas where intensive ground analysis will be necessary to determine whether to (a) reconstruct in a location that avoids the soil problem, (b) change the class of user (such as limiting use by horses), (c) close and abandon the trail segment, or (d) reconstruct in the same location, but provide special design features to solve the identified soil problems. It is further recommended that the managers include a soil scientist when planning trails that cross soils rated as poor.

(5). It is recommended that each manager make a systematic inventory of the OC 1&2 trails which might provide good loop and/or scenic opportunities for the visitor and "tag" them in the Special Features column of the DATA TABLE. If additional trails are identified, they should be added to the list in Table Five. Probably only the more outstanding opportunities should be so "tagged" and the inventory should emphasize trails which might provide good hiking opportunities near the periphery of the BMWC or which will disperse visitors from some of the very heavily used mainline trails in the interior.

(6). Reconstruction of OC 1&2 trails should not be completed to a standard which will encourage their use as mainline trails in conflict with the BMWC Recreation Management Direction. The OC 1&2 trails were placed near the bottom of each trail priority group in Table Five to allow time for careful advance planning.

(7). It is recommended that trails with very serious safety problems (of a magnitude which result in physical danger to the user) also be inventoried and "tagged" in the Special Features column of the DATA TABLE. These areas should receive highest priority for correction.

(8). As grizzly bear habitat maps are completed and the Cumulative Effects Model becomes operational, the BMWC trail system should be evaluated using those tools. The results of this analysis may suggest changes in the current priority rankings. In the interim trail project planning should include coordination with a wildlife biologist.

(9). It is recommended that the managers coordinate with the Regional ecosystem management staff group which is developing management implications for each vegetation habitat type. The objective would be to provide information about characteristic trail problems which occur in each habitat type. This could eventually become a good predictive tool on the ground for trail location and design and would integrate trail management into the ecosystem framework.

(10). It is recommended that each National Forest in the BMWC examine their Forest Plan budget for trail construction/reconstruction in light of the needs identified in this paper. The objective would be to provide funding sufficient to complete the construction/reconstruction job over a 20-year span. The most significant needs appear to be on the Spotted Bear RD of the Flathead NF and the Rocky Mountain RD of the Lewis and Clark NF.

(11). It appears that some Districts in the BMWC can complete their total construction/reconstruction workload in less than 20 years at current investment levels. Once this work is completed, it is recommended that Forest Service Capital Investment funds then be shifted to the other Districts in the BMWC where needs still exist.

(12). It is recommended that funding from the Bob Marshall Foundation be channelled as highest priority to meet the needs listed above (to complete the trail construction/reconstruction work within 20 years). Using this approach,

the Districts which can complete their work within 20 years at present levels of investment would have low priority for Foundation funds.

(13). It is recommended that additional emphasis be placed on advance trail planning and inventory on the Spotted Bear Ranger District. Funding for a "trail planning team" should be considered, so that additional trail construction funding could be used effectively if provided from the Bob Marshall Foundation or from other sources. Some need may also exist on the Rocky Mountain RD for detailed project planning should significant additional funding be realized.

(14). It is recommended that the overall trail maintenance needs in the BMWC be examined so that reconstructed trails will not be lost due to lack of maintenance after reconstruction is completed. This particular recommendation is outside the scope of this paper, but is a significant management concern.

(15). It is recommended that the information base for construction/reconstruction efforts be maintained in a DATA TABLE at the Ranger District. A master DATA TABLE for the entire BMWC would be maintained in the Regional Office Division of Recreation and Lands. This information would be updated annually. Supervisors Offices could retain a file of the DATA TABLE for their Forest at their discretion.

(16). It is recommended that the map information for this project be digitized and entered into the Geographic Information System for each Forest as soon as is feasible and then be maintained at the Forest level. This information would also be updated annually.

(17). It is recommended that initial training be given to each of the District/Forest/Regional personnel who will have direct access to the DATA TABLE so they have a good understanding of its use. This training would also include use of the PRESENT queries already available from this project. Such training would involve no more than a day per work site. It is also recommended that the managers become reasonably proficient in writing PRESENT queries so they can make maximum use of the data available.

(18). It is recommended that the appropriate information and training be made available to information receptionists so they can use the information to answer questions from the public.

(19). It is recommended to use the information in Table Six as appropriate in analyzing and selecting the final route for the Continental Divide National Scenic Trail.

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APPENDIX

The Appendix has Four sections as listed below:

Appendix I - Soil Information

This portion of the Appendix contains the site-specific writeups prepared by the soil scientists and geologists for the different soil-geomorhpic groups in the BMWC.

Appendix II - PRESENT queries

This portion of the Appendix lists the PRESENT queries available for use as part of this project and describes briefly what each query is designed to accomplish. Also included are simple operating instructions for running these queries.

Appendix III - DATA TABLE

This portion of the Appendix contains a printed copy of the entire BMWC Trail DATA TABLE used to develop this paper. Trails are listed in order by Ranger District and then by Trail Number.

Appendix IV - Maps

This portion of the Appendix includes three maps.

Map 1 displays the construction/reconstruction needs throughout the Bob Marshall Wilderness Complex.

Map 2 displays soil suitability ratings for trail construction in the BMWC

Map 3 displays soil suitability ratings for trail maintenance in the BMWC.

APPENDIX I

SOIL AND GEOMORPHIC GROUPINGS IN THE BMWC WHICH PROVIDE THE BASIS FOR THE SOIL SUITABILITY RATINGS

Summary of Geomorphic Groups with Suitability Ratings for Construction and Maintenance of Trails and Descriptive Material Concerning Problems.

Unit Name		Map U.	Construction Hazards	Rating	Maintenance Hazards	Rating
Floodplains	Wet	A	low bearing strength high water table poorly graded soil material blowdown common	POOR	blowdown common low bearing strength high water table poorly graded soil material	POOR
	Dry	A	seasonal high water table	GOOD	seasonal high water table moderate bearing strength	FAIR
Terraces	Timbered	B		GOOD	dry ravel on escarpment inclisions	VERY GOOD
	Grassland	B		GOOD	dry ravel on escarpment inclusions	VERY GOOD
Glacial Cirque Basins	Shale	C	low bearing strength hard rock outcrop inclusions seeps and springs common	POOR	low bearing strength blowdown common seeps and springs common late snow persistence	POOR
	Other	D	moderate bearing strength hard rock outcrop inclusions seeps and springs common	FAIR	moderate bearing strength late snow persistence seeps and springs common trail braiding common	FAIR
Ground Moraines	Shale	E	low bearing strength blowdown common clayey soil material	FAIR	low bearing strength blowdown common high erosion on tread clayey soil material	POOR
	Other	F		GOOD	moderate erosion on tread moderate bearing strength	FAIR
Block Glides		G	complex topography	FAIR	cut and fill failures seeps and springs common	FAIR
Forested High Elevation Ridgetops (40%±10)	Shale	H	hard rock outcrop inclusions clayey soil material	FAIR	late snow persistence slippery when wet clayey soil material	POOR
	Other	I	hard rock outcrop inclusions	GOOD	late snow persistence cut slope ravel and fill slope creep	GOOD

Unit Name		No.	Construction Hazards	Rating	Maintenance Hazards	Rating
Residual Mt. Sideslopes, Cool (30-60% slopes)	Limestone	J	hard rock outcrop and talus inclusions	GOOD	cut slope ravel slippery when wet late snow persistence	FAIR
	Other	K	hard rock outcrop and talus inclusions	GOOD	cut slope ravel moderate erosion on tread late snow persistence	FAIR
	Shale	L	hard rock outcrop inclusions clayey soil material	POOR	blowdown common high erosion on tread clayey soil material late snow persistence seeps and springs common cut slope ravel	POOR
Residual Mt. Sideslopes, Warm, 30-60%	Limestone	M	hard rock outcrop and talus inclusions	GOOD	cut slope ravel slippery when wet	GOOD
	Shale	N	hard rock outcrop inclusions clayey soil material low bearing strength	FAIR	cut slope ravel moderate erosion on tread clayey soil material	FAIR
	Other	O	hard rock outcrop and talus inclusions	GOOD	cut slope ravel moderate erosion on tread	VERY GOOD
Alpine Ridges (60%±10)		P	steep slopes cliffs hard rock outcrop and talus	FAIR	late snow persistence avalanches pathes seeps and springs common	FAIR
Breakland, Cool (60%±10)	Shale	Q	steep slopes hard rock outcrops clayey soil material	POOR	blowdown common cut and fill slope failures seeps and springs common high erosion on tread avalanches pathes late snow persistence	POOR
	Other	R	steep slopes cliffs hard rock outcrops	FAIR	cut slope ravel moderate erosion on tread avalanches pathes blowdown common late snow persistence	FAIR
Breakland, Warm (60%±10)		S	steep slopes cliffs hard rock outcrops	FAIR	cut slope ravel moderate erosion on tread	FAIR

Descriptions of Geomorphic Units Used to Prepare Ratings in Table Above

Flood Plains

Nearly level to gently sloping low flood plains along third to sixth order streams. Spring flooding is common, with the low areas more frequent than the slightly higher terraces. Vegetation includes uneven aged mixed conifers and water tolerant deciduous trees on the wetter soils. The dry soils are developed in sand and/or gravel, the wet soils are developed in fine textured mineral and organic soils with a high water table.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
A	Dry	I	good	fair
A	Wet	IA,I	poor	poor

Terraces

Nearly level to gently sloping glacial stream terraces along third to sixth order streams. Vegetation includes coniferous forest with areas of shrub and grasses. The timbered soils have loamy soils over a sandy and/or gravelly substrata; while the grasslands usually have sandy and gravelly soils to the surface.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
B	Timbered	Ib	good	good
B	Grassland	Ib	good	very good

Glacial Cirque Basins

Sloping to moderately steep high bowl-shaped basins formed by alpine glaciation. Elevation ranges from 5500 to 7500 feet M.S.L.. Vegetation includes uneven aged high elevation mixed conifers. Understory include menziesia on the north aspects to grouse whortleberry and beargrass on the south aspect. Soils are developed from sedimentary rock that includes limestone, argillites, quartizites, and shales. Parent materials include glacial tills, residual soils, and scoured bedrock The soils developed in glacial tills from shales are clayey and have low bearing strength. The other soils are gravelly and loamy with moderate bearing strength.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
C	Shale	II	poor	poor
D	Other	II	fair	fair

Ground Moraines

Rolling to hilly valley floors and low relief hills with glacial morainal deposits. Vegetation includes mixed conifer forest. Pioneer stands are often even age lodgepole pine. Old growth stands are often subalpine fir and spruce or Douglas fir and western larch. Clayey soils are gravelly clay loam and clayey glacial tills derived from limestones, argillites and quartzite bedrock.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
E	Clayey	IIIa	fair	poor
F	Other	III	good	fair

Block Glides

Moderately steep hummocky or benchy slopes formed by bedrock failure or mantle slumping. Vegetation included mixed conifer forest. Seep and spring areas often support aspen, willow, or birch. Soils are developed in gravelly, loamy, silty, and clayey material. Rocks and stones are common.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
G	All	IV	fair	fair

Forested High Elevation Ridge Tops - 30 to 50 Percent Slopes

Rounded, convex shaped mountain ridge tops and upper valley side slopes. Vegetation includes mixed conifer forest, such as white bark pine, subalpine fir, spruce and subalpine larch, and some forb rich grassland. Shale soils are clay loams developed from shale bedrock. Other soils are gravelly loams developed from limestones, argillites and quartzite bedrock.

Map Unit	Soil	L.T.A.	Trail Rating Const.	Maint.
H	Shale	Va	fair	poor
I	Other	Va	good	good

Residual Mountain Side Slopes - Cool Aspect - 30 to 60 Percent Slopes

Steep, north facing, forested mountain side slopes with both shallow and moderate stream dissection. Vegetation is a mixed conifer forest. Pioneer stands are usually even-aged lodgepole pine. While old growth stands include subalpine fir, and western larch. Limestone soils are gravelly loams developed from limestone bedrock, shallow soils, and rock outcrops are common. Other soils are gravelly loams developed from argillites and quartzite bedrock. Shale soils are loamy, clayey, and developed from shale bedrock.

Map Unit	Soil	L.T.A.	Trail Rating Const.	Maint.
J	Limestone	Vb,Vc	good	fair
K	Other	Vb,Vc	good	fair
L	Shale	Vb,Vc	poor	poor

Residual Mountain Side Slopes - Warm Aspect - 30 to 60 Percent Slopes

Steep, south facing, forested mountain side slopes with both shallow and moderate stream dissection. Vegetation includes a mosaic of dense timber, grassland parks and open grown timber with a grass-shrub understory. Trees include lodgepole pine and Douglas fir. Limestone soils are gravelly loam developed from limestone, shallow soils and rock outcrops are common. Shale soils are loamy and clayey and developed from shale bedrock. Other soils are gravelly loams developed from argillites and quartzite bedrock.

Map Unit	Soil	L.T.A.	Trail Rating Const.	Maint.
M	Limestone	Vd,Vc	good	good
N	Shale	Vd,Vc	fair	fair
O	Other	Vd,Vc	good	very good

Alpine Ridges - 50 to 70 Percent Slopes

Steep to very steep high elevation mountain peaks, glacial cirque headwalls and structural breaklands. Vegetation includes a mixture of high elevation conifers and mountain meadows and grass. Trees include stunted white bark pine, subalpine fir, spruce, and alpine larch. Most of this unit is rock outcrops and talus with about 30% a very stoney loam.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
P	All	VII	fair	fair

Breakland - Cool Aspect - 50 to 70 Percent Slopes

Very steep, north facing, forested glacial trough walls and structural breaklands. Vegetation includes mixed conifer forest. Trees include subalpine fir at mid and high elevations, along with western larch at mid and lower elevations. Lodgepole pine are a pioneer fire species. Lower slopes have glacial tills on laterial moraines. Upper slopes are generally residual soils.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
Q	Shale	VII	poor	poor
R	Other	VII	fair	fair

Breaklands - Warm Aspect - 50 to 70 Percent Slopes

Very steep, south and west facing, forested glacial troughwall and structural breaklands. Vegetation includes a mosaic of dense timber, grassland parks, and open grown timber with a grass-shrub understory. Trees include lodgepole pine, Douglas fir, western larch and subalpine fir. Lower slopes have glacial till soils on lateral moraines. The upper slopes are residual soils on glacial scoured slopes. Soils are derived from limestone, argillite, quartzite, and shale bedrock.

			Trail Rating	
Map Unit	Soil	L.T.A.	Const.	Maint.
S	All	VIII	fair	fair

APPENDIX II - PRESENT QUERIES AND USER INSTRUCTIONS

APPENDIX II - GENERAL USER INSTRUCTIONS FOR ALL PRESENT QUERIES

To run PRESENT queries from the BMWC TRAIL DATA TABLE or smaller DATA TABLE for your National Forest or Ranger District, complete the following steps:

(1). Enter the Data General CEO menu.

(2). Select 7 (Utilities) Then Newline.

(3). Select 7 (Present) Then Newline.

(4). Select 3 (Input) Then Newline.

(5). Select 1 (CEO File) Then Newline.

(6). Enter the Drawer, Folder and Document Name of the Data Table to be used as the input data source.

(7). Select 1(Run) Then Newline.

(8). Enter the Drawer, Folder and Document Name of the Query to be run. The query will then run automatically and the resulting report can be saved in the CEO filing system.

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY ONE

This query allows the user to select from the DATA TABLE any trail segments that fall in a particular construction class. When the query is run the computer will ask the operator which ranger district is desired. Type in the Data General identifier for the district. It will then ask which construction class the operator desires. Type in the letter code for the construction class desired. The query will then run automatically and will prepare a report which displays ranger district, trail name and trail number for each trail segment which is in the selected construction class.

Query

```
Parameter @Construction display "Enter desired construction class"
          @DISTRICT DISPLAY "ENTER DESIRED RANGER DISTRICT"
SELECT  Const_Class=@construction AND RANGER_DISTRICT = @DISTRICT
REPORT RANGER_DISTRICT Trail_Name Trail_No
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY TWO

This query selects trail segments which are identified as segments of the Continental Divide Trail. The report which is produced is wider than the 132 characters which can be printed on a wide printer. Therefore this query selects the segments and sorts them by trail number. It then displays the first six columns of the report. Ouery Three, which follows, performs the same functions, but displays the five remaining columns in the report. This information can then be used to evaluate different Continental Divide Trail segments.

Query

```
Pagesize 132 Col
Title:  Trail Segments Identified as Alternative Routes for the Continental
Divide National Scenic Trail" Left Font Normal
Select Sp_Features = "     CD     " or " Scenic_CD  " or "   NRT_CD    "
Sort Ranger_District Ascending Trail_No Ascending
Report Ranger_District Trail_Name Trail_No Trail_Segment Sp_Features
Soil_Rating_Mtce
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY THREE

This query is the companion to query two above and produces the remainder of the report needed to list all pertinent information on the Continental Divide Trail segments.

Query

```
Pagesize 132 Col
Select Sp_Features = "     CD     " or " Scenic_CD  " or "   NRT_CD    "
Sort Ranger_District Ascending Trail_No Ascending
Report Opp_Class Trans_Category Const_Class Type_of_Work Total_Cost_MD
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY FOUR

This query selects the trail segments which are identified as being in unknown condition at the present time and sorts them in order by opportunity class (in descending order). A report is then prepared which displays the following categories of information for each of these trail segments: Ranger District, Trail Name, Trail Number, Trail Length, Special Features, Soil Rating-Maintenance and Opportunity Class. This report must be printed on a wide (132 character) printer.

Query

```
Pagesize 132 Col
Title "Trails in Unknown Condition Sorted by Opportunity Class" Left Font
Normal
Select Const_Class = " E " or " J "
Sort Ranger_District Ascending Opp_Class Descending
Report Ranger_District Trail_Name Trail_No Trail_Length Sp_Features
Soil_Rating_Mtce Opp_Class
Total 2 "Total Miles" Col 30 SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY FIVE

This query selects trail segments in a particular opportunity class and totals the miles of trail in that opportunity class. The machine will ask for the desired opportunity class and then will provide the total miles in that opportunity class.

Query

```
Parameter @OppClass Display "Enter Desired Opportunity Class"
Select Opp_Class = @OppClass
Total 2 "Total Miles = " SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY SIX

This query allows the operator to enter a desired soil rating for construction and a desired ranger district. The soil rating-construction is a letter code (G, F, or P) which must be entered as space-code-space because the letter is centered in a column which is three spaces wide. The ranger district is the Data General identifier. Once this information is entered, the computer will select all trail segments that require some form of construction/reconstructon work and which fall in the desired soil class. A report is prepared which shows: Trail Name, Trail Number, Trail Length, Soil Rating-Mtce and Soil Rating-Construction. The total miles of trail meeting this selection criterion are also automatically calculated and displayed. Print on a wide (132 character) printer.

Query

```
Pagesize 132 Col
Parameter @SoilRating Display "Enter Desired Soil_Rating_Const"
          @District Display "Enter Desired Ranger_District"
Select Soil_Rating_Const = @SoilRating and Ranger_District = @District and
Const_Class = " A " or " B " or " C " or " D " or " F " or " G " or " H " or "
I "
Report Trail_Name Trail_No Trail_Length Soil_Rating_Mtce Soil_Rating_Const
Total 2 "Total Miles =" Col 26 SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY SEVEN

This query calculates the total miles of trail segments in the DATA TABLE and the total cost associated with construction/reconstruction of the segments which require work. These totals are then displayed in a report.

Query

```
Total "Total Cost" SUM(Total_Cost_MD) Picture ZZZZ.9
      "Total Miles" Col 50 SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY EIGHT

This query is a generalized query which is used to select construction/reconstruction priorities from the DATA TABLE and then sort the selected trail segments in a priority order. The computer will first ask for the desired ranger district. The operator should type in the Data General district identifier. The computer will then ask for up to four desired construction classes. The operator should type in the codes for the four construction classes to be examined. Because the construction class data is centered in the DATA TABLE columns and the columns are three spaces wide, the letter code should be preceded and followed by a blank space (space-letter code-space), or the computer will not look in the correct column for the information.

If less than four classes are desired, then the operator should type in "dummy" codes as needed to fill in the extra spaces. Any non-duplicated single letter of the alphabet between "L" and "Z" will work as a "dummy" code.

Once this information is entered, the query will automatically select each trail segment which meets the selection criteria and will then sort the resulting list first by opportunity class (in descending order) and then will sort within the opportunity class by soil class (in ascending order alphabetically).

The query then prepares a report which displays the sorted list of trail segments. The following information is displayed for each segment: Trail Name, Trail Number, Trail Length, Trail Segment, Special Features, and Soil Rating-Construction. In addition the total miles of trail is calculated and displayed.

The companion query (query nine on the next page) listed below performs the same functions, but lists additional columns of information which will not fit on single page that is only 132 characters wide. Both of these queries must be printed on a wide printer (132 characters).

Query

```
Pagesize 132 Col
Parameter @District Display "Enter Desired Ranger District"
          @ConstClass Display "Enter Desired Const Class"
          @ConstClassA Display "Enter Desired Const Class"
          @ConstClassB Display "Enter Desired Const Class"
          @ConstClassC Display "Enter Desired Const Class"
Select Ranger_District = @District and Const_Class = @ConstClass or
@ConstClassA or @ConstClassB or @ConstClassC
Sort Opp_Class Descending Soil_Rating_Mtce Ascending
Report Trail_Name Trail_No Trail_Length Trail_Segment Sp_Features
Soil_Rating_Const
Total 2 "Total Miles =" Col 24 SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY NINE

This query is the companion query to query eight on the previous page. It performs the same functions, but reports the columns of information listed below: Soil Rating-Maintenance, Opportunity Class, Construction Class, Type of Work to be Done and Total Cost in M$. It also calculates and displays the total cost of the work needed on the selected segments. This report is designed to be used in conjunction with query eight on the previous page.

Query

```
Pagesize 132 Col
Parameter @District Display "Enter Desired Ranger District"
          @ConstClass Display "Enter Desired Const Class"
          @ConstClassA Display "Enter Desired Const Class"
          @ConstClassB Display "Enter Desired Const Class"
          @ConstClassC Display "Enter Desired Const Class"
Select Ranger_District = @District and Const_Class = @ConstClass or
@ConstClassA or @ConstClassB or @ConstClassC
Sort Opp_Class Descending Soil_Rating_Mtce Ascending
Report Soil_Rating_Mtce Opp_Class Const_Class Type_of_Work Total_Cost_MD
Total 2 "Total Cost =" Col 88 SUM(Total_Cost_MD) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY TEN

This is the query used to develop construction/reconstructon priorities for the Spotted Bear Ranger District only. This query and the companion query listed below (query eleven) perform the same functions as queries eight and nine listed previously. The only difference is that the data is sorted one additional time (by transportation class) to develop the final list of priorities. Print on a wide (132 character) printer.

Query

```
Pagesize 132 Col
Parameter @ConstClass Display "Enter Desired Const Class"
          @ConstClassA Display "Enter Desired Const Class"
          @ConstClassB Display "Enter Desired Const Class"
          @ConstClassC Display "Enter Desired Const Class"
Select Ranger_District = "F10D04" and Const_Class = @ConstClass or @ConstClassA
or @ConstClassB or @ConstClassC
Sort Opp_Class Descending Trans_Category Descending Soil_Rating_Mtce Ascending
Report Trail_Name Trail_No Trail_Length Trail_Segment Sp_Features
Soil_Rating_Const
Total 2 "Total Miles =" Col 24 SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX III - BMWC TRAIL DATA TABLE - PRESENT QUERY ELEVEN

This query is similar to query ten. The report generated includes additional columns which will not fit on a page which is only 132 characters wide. Print on a wide printer (132 characters).

Query

```
Pagesize 132 Col
Parameter @ConstClass Display "Enter Desired Const Class"
          @ConstClassA Display "Enter Desired Const Class"
          @ConstClassB Display "Enter Desired Const Class"
          @ConstClassC Display "Enter Desired Const Class"
Select Ranger_District = "F10D04" and Const_Class = @ConstClass or @ConstClassA
or @ConstClassB or @ConstClassC
Sort Opp_Class Descending Trans_Category Descending Soil_Rating_Mtce Ascending
Report Soil_Rating_Mtce Opp_Class Trans_Category Const_Class Type_of_Work
Total_Cost_MD
Total 2 "Total Cost =" Col 104 SUM(Total_Cost_MD) Picture ZZZZ.9
```

APPENDIX II - BMWC TRAIL DATA TABLE - PRESENT QUERY TWELVE

This query is used to pull out the priority trails in opportunity classes 1 and 2 based on special features such as providing a loop opportunity, providing an especially scenic experience or similar features. This query is only used for developing priorities when an intermediate DATA TABLE is not created which separates the trail segments to be considered as construction/reconstruction priotities from the remainder of the trail segments listed in the BMWC Trail Data Table. Generally it is easier to create the separate DATA TABLE first and then use the queries listed on previous pages to prioritize the list. However, this query can be used to look at opportunities for improving visitor experience by pulling out all of the specially "tagged" trails in the DATA TABLE.

The computer will first ask the operator to enter the desired ranger district (the Data General identifier number) and then will ask the operator to enter four desired construction classes. If less than four construction classes are desired, then fill in the extra spaces with "dummy" codes (letters L through Z). The computer will identify all of the construction segments requested by the operator which have the selected special features. Remember to enter the construction class codes in the space-code-space format because the code is centered in a column that is three spaces wide.

The trail segments selected will be sorted in descending order by opportunity class and then will be sorted alphabetically in ascending order by the soil rating for maintenance. Finally a report will be prepared which lists for each segment the following information: Trail Name, Trail Number, Trail Length, Trail Segment, Special Features the the Soil Rating for Construction. The companion query (Query 13 below) finishes the portion of the report that will not fit within a page size of 132 characters. Print on a wide printer (132 characters).

Query

```
Pagesize 132 Col
Parameter @District Display "Enter Desired Ranger District"
          @Const Display "Enter Desired Construction Class"
          @ConstA Display "Enter Desired Construction Class"
          @ConstB Display "Enter Desired Construction Class"
          @ConstC Display "Enter Desired Construction Class"
Title "Priority Sort in Opportunity Classes One and Two" Center
Select Ranger_District = @District and Const_Class = @Const or @ConstA or
@ConstB or @ConstC and Sp_Features = "    NRT    " or "   Scenic    " or "
Loop    " or " Scenic_CD  " or "  NRT_Loop  " or "   NRT_Cb    " or "Scenic Loop
"
Sort Opp_Class Descending Soil_Rating_Mtce Ascending
Report Trail_Name Trail_No Trail_Length Trail_Segment Sp_Features
Soil_Rating_Const
Total 2 "Total Miles =" Col 24 SUM(Trail_Length) Picture ZZZZ.9
```

APPENDIX III - BMWC TRAIL DATA TABLE - PRESENT QUERY THIRTEEN

This is the companion query to query twelve above which reports the columns that will not fit within a page 132 characters wide. The rules for use are the same as query twelve and the program functions the same way.

```
Pagesize 132 Col
Parameter @District Display "Enter Desired Ranger District"
          @Const Display "Enter Desired Construction Class"
          @ConstA Display "Enter Desired Construction Class"
          @ConstB Display "Enter Desired Construction Class"
          @ConstC Display "Enter Desired Construction Class"
Title "Priority Sort in Opportunity Classes One and Two" Center
Select Ranger_District = @District and Const_Class = @Const or @ConstA or
@ConstB or @ConstC and Sp_Features = "    NRT    " or "  Scenic   " or "
Loop    " or " Scenic_CD  " or "  NRT_Loop  " or "   NRT_CD   " or "Scenic Loop
"
Sort Opp_Class Descending Soil_Rating_Mtce Ascending
Report Soil_Rating_Mtce Opp_Class Trans_Category Const_Class Type_of_Work
Total_Cost_MD
Total 2 "Total Cost =" Col 104 SUM(Total_Cost_MD) Picture ZZZZ.9
```

APPENDIX III - BMWC TRAIL DATA TABLE

APPENDIX III - DESCRIPTION OF BMWC TRAIL DATA TABLE

The DATA TABLE contains information on each segment of trail in the Bob Marshall Wilderness Complex. Each trail segment forms a row in the DATA TABLE and each item of information recorded for a particular trail segment is displayed under a column heading. The trail segments are sorted by Ranger District and are arranged in ascending order by trail number by Ranger District.

The column headings together with a key to the coded entries is shown below:

	Column Name	Description of Data Entry
1.	Ranger_District	Data General District Identifier such as F10D04
2.	Trail_Name	The trail name from the inventory.
3.	Trail_No	The trail number from the trail inventory
4.	Trail_Length	The length of the trail segment in miles
5.	Trail_Segment	A description of the beginning/ending points of the trail segment.
6.	Sp_Features	Information concerning special attributes of a particular trail segment. The codes for these attributes are as follows: CD = Continental Divide Trail Segment Loop = Provides a good loop opportunity NRT = National Recreation Trail segment Scenic = Is a particularly scenic trail segment Scenic_Loop = Both scenic and a loop trail Scenic_CD = A scenic Cont Div Trail segment NRT_CD = Both an NRT and a Cont Div segment NRT_Loop = Both an NRT and a loop trail
7.	Soil_Rating_Const	Ratings of Good, Fair or Poor for construction. These are a one letter code, G, F or P.
8.	Soil_Rating_Mtce	Ratings of Good, Fair or Poor for maintenance. These are also a letter code, G,F or P.
9.	Opp_Class	The Opportunity Class crossed by the trail.
10.	Trans_Category	The Transportation Class crossed by the trail where applicable. Classes range from 1 to 4.
11.	Const_Class	The letter code for the construction class assigned to the trail segment. These are described in detail in the Methods section and

range from A through K.

12. Type_of_Work	A brief description of the work needed on a particular trail segment.
13. Cost_Per_MD	The estimated cost/mile of trail work in M$.
14. Cost_MD	The estimated total cost of trail work in M$.

Ranger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Dep Class	Trans Category	Const Class	Type of Work	Cost Per Mi_MD	Total Cost_MD
F10001	Lion Creek NW	25	0.5	Near Lion Cr Trailhead	"	"	"	2	"	F	Relocate trail to new trailhead	8.0	4.0
F10001	Lion Creek NW	25	8.5	Remainder of Trail	"	"	"	2	"	K	Routine Maintenance	0.0	0.0
F10001	Smith Creek NW	29	6.0	Entire Trail	"	"	"	3	"	G	Heavy Maintenance	0.8	5.0
F10001	Naoa Point NW	31	3.3	Entire Trail	"	"	"	3	"	K	Routine Maintenance	0.0	0.0
F10001	Holland-Gordon NW	35	9.0	Entire Trail on SLRD	"	"	"	4	"	K	Routine Maintenance (heavy because of use)	0.0	0.0
F10001	Holland Lookout NW	42	3.0	Entire Trail	"	"	"	3	"	E	Unknown Condition	"	"
F10001	South Lost Creek NW	86	6.0	Entire Trail	"	"	"	3	"	K	Routine Maintenance	0.0	0.0
F10001	Big Salmon NW	110	2.5	Entire Trail	"	"	"	3	"	E	Unknown Condition	"	"
F10001	Soup Creek NW	484	2.0	Entire Trail	"	"	"	1	"	G	Relocation, reconstr, erosion problems, clearing	3.0	6.0
F10004	Palisade Creek	25	3.6	Entire Trail	"	G	F	2	3	G	Total reconstruction, stock hazard, blasting,	17.0	61.2
F10004	Palisade Creek(cont)	25	"	Entire Trail	"	"	"	2	"	G	heavy timber. Last opened in 1981. Bad trail	0.0	0.0
F10004	Little Salmon Creek	29	9.2	River to intsctn Tr 25	"	G	F	3	3	K	Routine Maintenance	0.0	0.0
F10004	Little Salmon Creek	29	7.8	Intsctn Tr 25 to Wild. Bdry.	"	F	F	3	3	B	Big timber, heavy blasting, relocate, 7' deep erosion	20.0	156.0
F10004	Holland-Gordon Cr.	35	18.9	Entire trail	"	"	F	4	4	K	Routine maintenance	0.0	0.0
F10004	West Side So Fork	35	2.3	Big Prairie to Gordon Creek	"	G	F	4	4	D	Heavy maintenance	1.5	3.3
F10004	Gunsight Peak NW	43	6.6	Entire Trail	"	F	F	2	"	I	Remove big rocks, stabilize tread, hvy brushing	5.0	33.0
F10004	Meadow Mtn	56	4.6	Entire Trail	"	F	F	2	"	J	Unknown Condition	"	"
F10004	East Side So Fork	80	13.8	Meadow Cr to Black Bear	"	F	F	4	4	C	Spot reconstruction and heavy maintenance	1.6	22.1
F10004	East Side So Fork	80	8.0	Black Bear to Salmon Forks	"	G	F	4	4	C	Spot reconstruction and heavy maintenance	2.3	18.4
F10004	East Side So Fork	80	4.8	Salmon Forks to White River	"	G	F	4	4	C	Spot reconstruction, reroutes and heavy mtce.	1.7	8.2
F10004	East Side So Fork	80	8.2	White River to Big Prairie	CD	G	F	4	4	C	Spot reconstruction and heavy maintenance	0.5	3.9
F10004	Miner Creek	81	12.0	Entire Trail	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
F10004	Spotted Bear River	83	1.5	Jct. Tr 112 to above Hy Lake	CD	F	F	3	"	E	Unknown Condition	"	"
F10004	Spotted Bear River	83	23.7	Remainder of Trail	CD	G	F	3	4	D	Spot relocation, some tread work, heavy mtce, cord.	3.5	83.0
F10004	Dean Creek	87	8.4	Entire Trail	"	F	P	1	"	J	Unknown Condition (stream has west slope cutthroat	"	"
F10004	Sergeant-Harrison	88	1.3	Jct Tr 584 to Sec 35	"	G	F	2	2	K	Routine Maintenance	0.0	0.0
F10004	Sergeant-Harrison	88	3.0	Sec 35 to Bdry	"	G	F	2	2	G	Relocation around bogs	10.0	3.0
F10004	Silvertip Creek	89	5.8	Sec 10 to Mid Mtn.	Scenic Loop	F	F	1	2	J	Unknown Condition (Loop opportunity)	"	"
F10004	Silvertip Creek	89	4.3	Spotted Bear River to Sec 10	Scenic Loop	F	F	1	2	G	Big boulders, exposed roots, steep, erosion, bogs	20.0	86.0
F10004	Silvertip Creek	89	1.9	Sec 4 to Sec 10	Scenic Loop	G	F	1	2	K	Routine Maintenance	0.0	0.0
F10004	Wall Creek	90	6.3	Tr 112 Jct to Jct Tr 229	"	F	P	2	3	B	Relocation, tread, bogs, rock blasting, heavy timber	17.0	107.1
F10004	Wall Creek	90	3.4	Jct Tr 229 to Jct Tr 83	"	G	P	2	3	K	Routine Maintenance	0.0	0.0
F10004	Hart Lake	92	5.2	Entire Trail	"	F	F	1	2	K	Routine Maintenance - some tread slough	0.0	0.0
F10004	So Fk Nanny Creek	93	4.0	Entire Trail	"	F	F	1	"	J	Unknown Condition	"	"
F10004	Helen Creek	100	13.9	Entire Trail	"	F	F	2	3	G	Reconstruct Tread, some steep grades and rock	8.0	104.0
F10004	Lost Jack	102	5.0	Entire Trail	"	F	F	2	2	K	Routine Maintenance	0.0	0.0
F10004	Mid Creek	103	5.0	Trailhead to forks	"	F	F	2	2	K	Routine Maintenance	0.0	0.0
F10004	Mid Creek	103	2.5	Forks to Mid Mtn	Loop	F	F	2	2	J	Unknown Condition (Good loop opportunity)	"	"
F10004	Hungry Creek	105	6.0	Entire Trail	"	P	P	2	2	K	Heavy use during hunting season-mtce only	0.0	0.0
F10004	Picture Ridge	107	12.8	Entire Trail (scenic loop)	Scenic Loop	F	G	2	2	I	Waterbars, hvy mtce, relocation around steep areas	3.5	44.8
F10004	Elk Ridge West	109	3.0	Entire Trail	"	F	F	1	"	I	Heavy maintenance, reroute steep spots	2.5	7.5
F10004	Big Salmon Creek	110	10.6	So. Fk Flathead to Sapoho Cr.	"	F	F	4	4	K	Routine maintenance	0.0	0.0
F10004	Big Salmon Creek	110	3.5	Sappho Cr. to Dart Cr.	"	F	F	4	4	D	Spot drainage work and waterbars	3.0	10.5
F10004	Big Salmon Creek	110	2.6	Dart Creek to Pendant	"	G	F	4	4	B	Reconstruction	9.0	23.4
F10004	Big Salmon-Seeley Cr	110	3.9	Seeley Cr to Wild. bdry.	"	F	F	4	3	B	Heavy brush, erosion control, blasting	9.0	35.1
F10004	Garnet	111	1.4	Intsct. Tr 110 to Salmon Point	Scenic	F	F	1	2	I	Very Scenic Trail, logged in 1980	5.0	7.0
F10004	Garnet	111	5.6	Salmon Point to Brownie	Scenic	F	F	1	2	K	Routine maintenance	0.0	0.0
F10004	White River	112	2.0	River trail 126 to Sec 15	CD	G	P	4	4	K	Routine Maintenance	0.0	0.0
F10004	White River	112	2.1	Sec 15 to Sec 14	CD	P	P	4	4	B	Land failure, total relocation/reconstruction	12.0	25.2
F10004	White River	112	11.4	Sec 14 to Jct Tr 100	CD	G	F	3	4	D	Big rocks and ledges needing blasting	6.0	68.4
F10004	White River	112	4.1	Jct. Tr 100 to Jct Tr 90	CD	G	F	3	4	K	Routine Maintenance	0.0	0.0
F10004	White River	112	1.0	Jct Tr 90 to Sec 17	CD	P	F	3	4	B	Excessive grades, erosion, relocation	20.0	20.0
F10004	White River	112	1.4	Sec 17 to Divide	CD	F	F	3	4	D	Rock removal and waterbar installation	2.0	2.8
F10004	Trickle Creek	115	5.5	Entire Trail	"	G	F	2	2	E	Heavy brushing at least, light use	"	"
F10004	Sun River Pass	116	1.5	Entire Trail on SB RD	CD	F	P	3	4	K	Routine Maintenance	0.0	0.0
F10004	Albino Creek	118	2.8	Entire trail	"	F	F	1	"	J	Unknown condition	"	"
F10004	Damnation Trail	122	5.0	Entire Trail	Scenic	F	F	1	2	G	Blasting, excessive rock, excessive grade (Scenic)	17.0	85.0
F10004	Otis Lake	123	2.1	Entire Trail	"	F	F	1	2	I	Brushing and heavy logging	4.0	8.4

	Ranger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_MD	Total Cost_MD
61	F10004	East Side So Fork	126	23.5	Big Prairie to Dry Fork Divide	CD	G	F	4	4	C	Spot reconstruction and heavy maintenance	0.3	6.5
62	F10004	Tillson-Shale	127	7.0	Entire Trail	Scenic	F	F	1	2	K	Routine Maintenance-Very Scenic Trail	0.0	0.0
63	F10004	Gordon Peak	128	1.0	Sec 2 area (1 Mi)	"	F	F	1	2	G	Blasting and total reconstruction	12.0	12.0
64	F10004	Gordon Peak	128	4.0	Remainder of Trail	"	F	F	1	2	K	Routine maintenance	0.0	0.0
65	F10004	Bartlett Creek	129	14.0	Entire trail	"	F	P	2	3	J	Erosion control work	1.5	21.0
66	F10004	Babcock Creek	130	9.8	Entire Trail	"	G	F	2	2	K	Routine maintenance	0.0	0.0
67	F10004	Holbrook	131	7.6	Gorge up to intscto Tr 212	"	F	F	2	3	G	Blasting, erosion control,restore tread, turnpike	10.0	76.0
68	F10004	Holbrook	131	3.4	Below Gorge	"	G	F	2	3	K	Routine maintenance	0.0	0.0
69	F10004	Bartlett Mtn.	132	3.0	Entire Trail	"	F	F	2	2	J	Unknown Condition	"	"
70	F10004	Butcher Mtn.	133	6.0	Entire trail	"	G	F	1	2	K	Routine maintenance	0.0	0.0
71	F10004	George Cr.	135	3.2	Entire trail	"	G	F	1	1	I	Very heavy corduroy,relocation, bad trail	5.0	16.0
72	F10004	Gordon Mtn-Kidd Mtn.	136	10.7	Entire trail	Scenic	F	F	1	3	K	Routine maintenance (scenic trail)	0.0	0.0
73	F10004	Marshall Creek	137	5.2	Lower Trail up to Sec 16	"	F	F	2	2	I	Brushing and heavy logging	3.0	15.6
74	F10004	Marshall Creek	137	2.1	Sec 16 to Otis Lake	"	F	F	1	2	I	Spot reconstr., heavy logging	10.0	21.0
75	F10004	Holly Creek	138	5.4	Entire Trail	CD	F	F	3	4	C	Spot reconstr,steep,erosion,blasting big rocks	3.9	21.1
76	F10004	Rapid Creek	139	6.3	Se 22 to So Fk Tr 126	CD	G	F	2	3	K	Steep sections, some bogs, handle with otce.	0.0	0.0
77	F10004	Rapid Creek	139	3.4	Wild. Bdry to Sec 22	CD	F	F	2	3	G	Very steep, rock blasting,relocation and reconst.	17.0	57.8
78	F10004	Bar Creek	140	2.8	Bdry. to Sec 10	Scenic	F	F	1	2	G	Steep, extreemly so at upper end, bad erosion	12.0	33.6
79	F10004	Bar Creek	140	2.5	Sec 10 to So Fk Tr 126	Scenic	G	F	1	2	K	Routine maintenance	0.0	0.0
80	F10004	Youngs Creek	141	12.7	Youngs Creek Portion	"	F	F	3	4	K	Minor corduroy work	0.0	0.0
81	F10004	Jenny-Youngs Creek	141	4.3	Ent Seg (No. same as Youngs)	"	F	F	1	3	G	Relocation away from bogs, steep, timber clearing	17.0	73.1
82	F10004	Foolhen Creek	142	5.0	Entire Trail	"	G	F	1	3	I	Spot reconstruction & heavy maintenance	1.0	5.0
83	F10004	Limestone Creek	143	9.0	Entire trail	"	F	P	1	3	G	Very boggy,badly washed,thick fir and LPP removal	15.0	135.0
84	F10004	Badger Pass Cutoff	147	2.1	Entire trail on SB RD	CD	F	F	3	3	B	Erosion control, rerouting around bogs, corduroys	10.0	21.0
85	F10004	Morrison Creek	154	7.1	Bdry to Jct Lodgepole Tr	CD	P	P	3	"	B	Poor soil, bogs, total reconstruction	17.0	120.7
86	F10004	Morrison Creek	154	2.1	Lodgepole Tr to River Tr	CD	P	P	3	"	D	Spot reroutes around bogs	4.0	8.4
87	F10004	Middle Fk East Side	155	8.6	Bdry to Porter Creek	CD	F	F	3	4	D	Some bogs and some tread sloughing	3.0	25.8
88	F10004	Middle Fk East Side	155	4.0	Porter Cr to Surprise Cr	CD	G	F	4	4	K	Routine Maintenance	0.0	0.0
89	F10004	Middle Fk East Side	155	4.5	Surprise Cr to Sec 34	CD	P	P	3	4	B	Total relocation and/or major corduroy for bogs	20.0	90.0
90	F10004	Middle Fk East Side	155	3.2	Sec 34 to Switchback Cr	CD	F	F	3	4	K	Routine maintenance	0.0	0.0
91	F10004	Middle Fk East Side	155	1.3	Switchback Cr to Ringer Mtn	CD	P	P	3	4	B	Horrible soils-relocation/corduroy for bogs	20.0	26.0
92	F10004	Middle Fk East Side	155	2.4	Ringer Mtn to Jct Bowl Cr.	CD	P	P	3	4	K	Routine Maintenance	0.0	0.0
93	F10004	Clack Cr.	160	2.4	River to Sec 26	"	P	P	3	4	C	Reroutes, retread,700ft turnpike,waterbars,brush	5.4	13.0
94	F10004	Clack Cr.	160	2.7	Sec 26 to Tr 241	"	G	F	2	4	I	Steep grades,erosion,brushing , rock work	6.0	16.2
95	F10004	Strawberry (Big Riv)	161	10.0	Entire Trail	CD	F	P	3	3	D	Spot bog reloc,short corduroy,some water bars	3.0	30.0
96	F10004	Dolly Varden-Pent.	173	2.9	Tr 83 to Sec 22	CD	G	F	2	4	K	Routine Maintenance	0.0	0.0
97	F10004	Dolly Varden-Pent.	173	12.4	Sec 22 to Jct Tr 189	Scenic	G	F	1	3	G	Bogs,steep,severe erosion,blasting, dangerous	20.0	248.0
98	F10004	Dolly Varden-Pent	173	5.4	Jct Tr 189 to Jct Tr 327	"	F	F	1	3	K	Routine Maintenance (Above trail section is scenic)	0.0	0.0
99	F10004	Cox Creek	175	7.8	Entire Trail	"	F	F	3	3	D	Some waterbars, spot relocation around bogs	6.0	46.8
100	F10004	Basin-PentLagon Cabin	177	5.0	Entire Trail	Scenic_CD	F	F	1	4	I	Spot reconstr,blasting,tread work,steep (Scenic)	10.0	50.0
101	F10004	Lodgepole	179	8.0	Entire Trail	"	F	F	2	"	G	Bad bogs,rotted corduroy,heavy timber, rock blast	17.0	136.0
102	F10004	Argosy Creek	189	5.2	Dolly Varden Tr to Sec 24	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
103	F10004	Argosy Creek	189	3.0	Sec 24 to top	"	P	F	1	"	G	Brushing,reconstr,water bars,rock removal/blasting	14.0	42.0
104	F10004	Line Cr (Mst Riv Bt)	193	4.1	Entire Trail	"	G	F	1	2	K	Routine Maintenance	0.0	0.0
105	F10004	Burnt Creek	195	7.7	Entire Trail	"	F	F	2	3	G	Heavy brush,tread work,erosion control,relocation	14.0	107.8
106	F10004	Twin Peak	200	4.5	Entire Trail on SB RD	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
107	F10004	Bradley Lake	201	6.5	Entire Trail	"	G	F	1	"	J	Unknown condition	"	"
108	F10004	Cabin Creek	205	4.0	Entire Trail	Scenic Loop	F	F	1	3	I	Lots of water bars,spot tread work,scenic loop opp	3.0	12.0
109	F10004	Shaw Creek	212	3.1	Shaw Cabin to Sec. 25	"	G	F	2	3	I	Reconstruct tread on sidehill	13.0	40.3
110	F10004	Shaw Creek	212	2.0	Sec 25 to Sec 24	"	F	F	2	3	I	Heavy maintenance	5.0	10.0
111	F10004	Shaw Creek	212	2.3	Sec. 24 to Pendant Creek	"	F	F	2	3	I	Relocation to avoid bogs,corduroy, erosion control	13.0	29.9
112	F10004	Feline Cr-Gordon Cr.	213	3.5	Entire trail	"	F	F	1	2	I	Relocate around some bogs, needs cut out	4.0	14.0
113	F10004	West Side Big River	214	6.0	Entire Trail	"	F	F	3	4	K	Routine Maintenance	0.0	0.0
114	F10004	Flotilla Lake	215	2.0	Entire Trail	"	P	F	4	"	C	Remove roots,bog relocat,corduroy.drnge,turnpike	9.3	18.5
115	F10004	Trail Creek	216	1.8	Strawberry to Jct Tr 479	"	F	P	1	2	K	Routine Maintenance	0.0	0.0
116	F10004	Trail Creek	216	7.4	Jct Tr 479 to Bowl Cr Tr	"	F	P	1	2	J	Unknown Condition	"	"
117	F10004	Upper Bowl Creek	216	11.0	Bowl Cr Tr intersection	"	F	P	1	2	K	Maintenance,Heavy Brushing	0.0	0.0

	Ranger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Dep Class	Trans Category	Const Class	Type of Work	Cost Per Mi_RD	Total Cost_RD
121	F10004	Lena Lake	225	1.0	Entire Trail	"	G	F	2	1	G	Spot reconst, needs opening, may end user control	7.1	5.0
122	F10004	Picture Point	226	2.2	Entire Trail	Scenic	F	F	2	2	G	Steep & rocky, extensive relocation & blasting	15.0	33.0
123	F10004	Middle Fk Wall Creek	229	8.1	Entire Trail	Scenic Loop	F	P	1	2	I	Spot rocky,steep areas (hvy blasting),hvy clearing	15.0	125.0
124	F10004	Middle FK Wall Creek	229	"	Entire Trail	"	F	P	1	2	I	This is an extremely good scenic loop opportunity	"	"
125	F10004	Cano Creek	233	5.3	Entire Trail	CD	F	F	2	3	I	Brushing and erosion control, some blasting	3.0	15.9
126	F10004	Grouse Creek	236	4.5	Entire Trail	"	F	F	1	"	I	Heavy downfall, some tread work	2.0	9.0
127	F10004	Upper Twin Creek	237	1.9	Jct Tr 81 to Twin Creek	"	F	F	1	"	G	Steep,reconstr tread,relocate to reduce grade	12.0	22.8
128	F10004	Upper Twin Creek	237	3.1	Twin Creek to Head Creek	"	F	F	1	"	I	Brushing, some tread work, a few bogs	3.0	9.3
129	F10004	Upper Twin Creek	237	4.2	Head Creek to Jct Tr 329	"	F	F	3	"	G	13 creek crossings, relocation to avoid crossings	12.0	50.4
130	F10004	Upper Twin Creek	237	8.9	Jct Tr 329 to Road	"	G	F	3	"	D	Brushing, re-establish tread, some bogs, hvy mtce.	3.0	26.7
131	F10004	Soy Mountain	238	4.4	Entire Trail	Scenic	F	F	1	"	K	Routine Maintenance (Scenic Trail)	0.0	0.0
132	F10004	Chair Mtn-Trilobite	241	15.6	Entire Trail	"	F	F	1	4	K	Routine Maintenance	0.0	0.0
133	F10004	Christopher Ridge	243	9.8	Entire Trail	Scenic	F	F	2	2	K	Routine Maintenance (Very Scenic Trail)	0.0	0.0
134	F10004	Una Creek	246	3.7	Entire Trail	"	G	F	1	2	K	Steep trail, OK at present because of low use	0.0	0.0
135	F10004	Snow Creek	248	4.3	Entire Trail	"	P	P	1	2	I	Rock removal,tread repair,waterbars,last entered 78	5.0	21.5
136	F10004	Charlotte Peak	249	6.1	Entire trail	"	F	F	1	2	I	Erosion control work	1.5	9.2
137	F10004	Mt. May Cutoff	256	2.2	Entire Trail	"	F	F	1	"	I	Erosion control, pack bumpers	3.0	6.6
138	F10004	Porter Creek	259	2.0	Entire Trail	"	G	F	1	"	I	Brushing, Hvy Mtce (may abandon)	3.0	15.0
139	F10004	Slim Creek	261	2.1	Entire Trail	"	P	P	1	"	J	Unknown Condition	"	"
140	F10004	Gateway Point	262	4.5	Entire Trail	Scenic	F	F	1	2	I	Heavy Maintenance-Logging Out (Scenic)	1.5	6.8
141	F10004	West Side So Fork	263	8.0	Black Bear to Salmon Forks	"	G	F	4	4	C	Spot reconstruction, reroutes and heavy mtce.	3.2	25.6
142	F10004	West Side So Fork	263	12.8	Salmon Forks to Big Prairie	"	G	F	4	4	C	Spot reconstruction and heavy maintenance	1.1	13.6
143	F10004	Danaher-Hann Cr	265	8.6	Entire Trail	"	G	F	1	3	I	Steep grade, spot reconstruction & heavy mtce.	1..	8.6
144	F10004	Basin Creek	267	9.0	Entire Trail	"	F	F	1	2	G	Frequent rerouting, moderate log removal	17.0	153.0
145	F10004	Catchea Creek	269	6.0	Entire Trail	"	G	F	1	2	I	Heavy brushing	2.5	15.0
146	F10004	Stadler Creek	271	3.7	So Fk Tr 126 to Sec 6	Scenic	G	F	3	4	C	Corduroy some bogs, minor relocation	8.6	32.0
147	F10004	Stadler Creek	271	1.7	Sec 6 through Sec 32	Scenic	F	F	3	4	A	Extensive relocation/reconst,rock blasting, timber	21.2	36.0
148	F10004	Stadler Creek	271	1.5	Sec 32 to Bdry	Scenic	F	F	3	4	K	Reconstructed in 1986-routine maintenance	0.0	0.0
149	F10004	Fiction Creek	272	2.8	Entire Trail	"	G	F	1	"	J	Condition Unknown	"	"
150	F10004	Danaher-Ayres Creek	273	4.2	Entire Trail	"	G	F	2	3	K	Routine maintenance	0.0	0.0
151	F10004	Calf Creek	277	3.1	Wild Bdry to Sec 10	"	F	F	1	2	K	Re-tine maintenance	0.0	0.0
152	F10004	Calf Creek	277	2.6	Sec. 10 to Sec 7	"	F	P	1	2	I	Heavy maintenance	6.0	15.6
153	F10004	Calf Creek	277	2.4	Remainder of Trail	"	G	G	1	2	K	Routine maintenance	0.0	0.0
154	F10004	Blackfoot Divide	278	0.8	Intsctn Tr 283 to center Sec 1	Scenic	F	F	1	2	G	Major reconstr, steep, deep gullies, blasting	10.0	8.0
155	F10004	Blackfoot Divide	278	18.1	Sec 1 to Youngs Pass area	Scenic	F	F	1	2	K	Routine maintenance	0.0	0.0
156	F10004	Blackfoot Divide	278	1.1	Youngs Pass Area	Scenic	F	F	1	2	G	Major reconstr, steep, deep gullies, blasting	10.0	11.0
157	F10004	Otter Creek	279	7.0	Entire Trail	"	F	F	1	2	J	Condition Unknown	"	"
158	F10004	Pyramid-Marshall	283	6.4	Entire trail	"	F	F	1	3	K	Routine maintenance (recently reconstructed)	0.0	0.0
159	F10004	Ross Creek	284	2.1	Jct. Tr 283 to Sec 1	"	G	F	1	2	G	Relocation to avoid bogs, big timber (clearing)	15.0	31.5
160	F10004	Ross Creek	284	1.4	Sec 1 to Tr 278	"	F	F	1	2	K	Routine Maintenance	0.0	0.0
161	F10004	Doctor Lake	291	0.5	Sec 11 to Lake	Scenic	G	F	2	1	G	Major bogs,spot reloc(repair may require use cntrl	7.0	3.5
162	F10004	Doctor Lake	291	2.9	Tr 35 to Sec 11	"	G	F	2	1	K	Routine Maintenance	0.0	0.0
163	F10004	Scalp Cr.	315	3.1	Entire Trail	"	F	P	1	"	I	Brush work, logging,etc.	2.5	7.8
164	F10004	Winter Creek	317	5.0	Entire Trail	"	F	F	2	"	J	Unknown Condition	"	"
165	F10004	Pi ing Creek	318	7.2	Entire Trail	"	F	F	1	"	I	Roots, tread work,brushing,rock removal, waterbars	5.0	36.0
166	F10004	Gateway Gorge	322	5.3	Entire Trail	CD	P	P	3	3	D	Heavy Maintenance	3.0	15.3
167	F10004	Bowl Cr.	324	4.1	Jct Tr 116 to Middle Fk Tr	CD	P	P	3	3	C	100 waterbars, brushing,gabions,re-establish tread	8.3	34.0
168	F10004	Bowl Cr.	324	6.9	Remainder of trail	CD	P	P	3	3	D	Extremely bad bogs, total relocation/reconstruct	20.0	138.0
169	F10004	Schafer Creek	327	17.0	Remainder of Trail	"	F	P	3	"	K	Routine Maintenance	0.0	0.0
170	F10004	Schafer Creek	327	3.0	West Fk to top of Divide	"	P	P	3	"	D	Erosion, bad clay (relocate and reconstruct)	16.0	48.0
171	F10004	Twin Falls	329	10.5	Entire Trail	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
172	F10004	Elk Ridge	333	11.8	Entire Trail	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
173	F10004	Lodgepole Mtn	337	8.0	Entire Trail	"	F	F	1	"	I	Steep, needs waterbars and blasting of rock	2.5	20.0
174	F10004	Cao Mtn	338	1.5	Cox Cr to top of ridge	Scenic	F	F	2	"	K	Routine Maintenance (Old LB, very scenic)	0.0	0.0
175	F10004	Cap Mtn	338	2.5	Top of ridge to Cont. Divide	Scenic	F	F	2	"	J	Unknown Condition	"	"
176	F10004	Red Plume	340	5.0	Entire Trail	"	F	F	1	"	I	Steep, needs heavy logging out- Low use	2.0	10.0
177	F10004	Clack Mdws	346	3.0	Entire Trail	"	F	F	1	2	I	Top is OK, hill needs major tread work	10.0	30.0
178	F10004	Pot Mountain	359	2.6	Jct Tr 173 to Jct Tr 333	Loop	F	F	1	2	K	Routine Maintenance (Good loop opportunity)	0.0	0.0
179	F10004											Heavy mtce, reestablish tread	2.0	12.4

	Ranger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_MDT	Total Cost_MDT
181	F10004	E. Fk Strawberry	371	5.3	Entire Trail	CD	P	P	2	3	N	170% pitch,rutted, parallel trls,horse killer	2.8	15.0
182	F10004	So Fk White River	380	1.0	Jct. Tr 138 to Sec 21	"	G	F	1	"	E	Unknown Condition	"	"
183	F10004	So Fk White River	380	1.5	Sec 21 to end	"	G	F	1	"	J	Unknown Condition	0.0	0.0
184	F10004	Lower Twin	385	13.1	Entire Trail	"	F	F	1	"	I	Tread repair, brushing,washouts along creek	5.0	65.5
185	F10004	Calbick Creek	391	5.0	Entire Trail	"	P	P	1	2	G	Bad bogs, poor soils, total relocation	20.0	100.0
186	F10004	Head Creek	442	4.3	Entire Trail	"	F	F	1	"	I	Heavy downfall, some tread work	2.0	9.6
187	F10004	Three Sisters	447	3.0	Entire Trail	"	F	F	1	2	I	Brushing and stream crossings	5.0	15.0
188	F10004	Brownie Creek	451	1.6	Tr 110 to Sec. 12	"	F	F	1	2	I	Logged in 1980	7.0	11.2
189	F10004	Brownie Creek	451	2.4	Sec 12 to Tr 111	"	F	F	1	2	K	Routine maintenance	0.0	0.0
190	F10004	Tango Point	455	2.2	Entire trail	"	F	F	1	"	J	Unknown condition	"	"
191	F10004	Pendant Creek	457	4.5	Entire trail	"	G	F	4	4	B	Hvy erosion control,turnpike,spot relocation	9.0	40.5
192	F10004	Brownstone Creek	465	1.0	Entire Trail	"	F	F	1	"	J	Condition Unknown	"	"
193	F10004	Crimson Peak	468	3.5	Entire Trail	"	F	F	1	2	K	Very steep, low use, no resource problems now	0.0	0.0
194	F10004	Mud Lake Mtn.	470	2.5	Entire Trail	"	F	F	1	2	K	Routine Maintenance	0.0	0.0
195	F10004	Winter-Cox Divide	476	4.5	Entire Trail	"	F	F	2	3	G	Alt rock and bogs, brushy, Tr resembles creek bot	20.0	90.0
196	F10004	Strawberry Cutoff	478	1.4	Entire Trail	"	P	P	2	3	G	Very Steep, poor soils, blasting	20.0	28.0
197	F10004	Bowl Cr Cutoff	479	2.9	Entire Trail	"	P	P	1	3	G	Spot reconstruction	10.0	29.0
198	F10004	Cannon Creek	493	4.5	Sec. 36 to jct. Tr. 115	"	G	F	1	"	I	Heavy Brushing, Last maintained 1972,avalanche debi	1.5	6.8
199	F10004	Cannon Creek	493	1.0	Wilderness Bdry. to sec. 36	"	F	F	1	"	I	Erosion control and heavy brushing	10.0	10.0
200	F10004	Cardinal Creek	506	5.0	Entire Trail	"	F	F	1	3	G	Major tread reconstruction plus drainage	14.0	7.0
201	F10004	Capitol Mtn	522	4.0	Entire Trail	"	F	P	1	"	J	Unknown condition	"	"
202	F10004	Rambler Creek	524	4.5	Entire Trail	"	F	F	2	2	I	Heavy mtce,brushing and tread work, big timber	3.0	13.5
203	F10004	Jumbo Lookout	569	5.0	Entire Trail	"	F	F	1	2	K	Routine maintenance	0.0	0.0
204	F10004	Harrison Creek	584	3.2	Trailhead to Sec 7	Loop	F	F	2	2	K	Routine Maintenance	0.0	0.0
205	F10004	Harrison Creek	584	3.3	Sec 7 to Jct Tr 89	Loop	F	F	2	2	J	Unknown Condition (Good Loop Opportunity)	"	"
206	F10004	Haystack Mtn	626	3.2	Entire Trail	Scenic	F	F	3	2	K	Scenic Trail on top of Wall-Routine Maintenance	0.0	0.0
207	F10004	Kid Lookout	628	4.6	Entire Trail	Scenic Loop	F	F	2	2	G	Poorly defined,very steep, blasting, scenic loop	18.0	82.8
208	F10004	Rampart Mtn.	643	2.1	Entire trail	"	P	P	1	"	K	Routine Maintenance	0.0	0.0
209	F10004	Chair Mtn Cutoff	686	3.0	Entire Trail	"	G	F	1	"	G	Very steep, rock blasting (very bad trail)	20.0	60.0
210	F10004	Sunburst Lake	693	2.0	Entire Trail	"	G	F	3	1	B	Heavy timber, boggy for nearly entire length	14.0	28.0
211	F10004	Hodag Ridge	701	7.0	Entire trail	Scenic	F	F	2	2	J	Unknown Condition (Highly Scenic)	"	"
212	F10004	Winter Pt-Slideout Pl	729	6.6	Entire Trail	"	F	F	2	"	J	Unknown Condition	"	"
213	F10004	Kevan Mtn	732	0.7	Entire Trail	CD	F	F	2	4	K	Routine Maintenance	0.0	0.0
214	F10004	Tillson Peak	734	1.0	Last mile of trail	"	F	F	1	2	I	Tread work	1.0	1.0
215	F10004	Tillson Peak	734	0.1	Remainder of Trail	"	F	F	1	2	K	Routine Maintenance	0.0	0.0
216	F10004	Otter Connection	736	2.5	Entire Trail	"	G	F	3	4	K	One washed out spot, otherwise good	0.0	0.0
217	F10004	Sentinel Lookout	737	1.6	Entire Trail	Scenic	G	F	1	2	K	Very scenic-good trail	0.0	0.0
218	F10004	Sandstone Creek	743	2.7	Entire Trail	"	F	F	1	"	J	Condition Unknown	"	"
219	F10006	Elk Lake	0	1.0	Tr 167 to Elk Lake	"	F	F	3	"	B	New Construction-included in cost for trail 260	10.0	10.0
220	F10006	Logan-Dirty Face	62	4.4	Elk Cr Tr to Sec 22	"	G	F	2	"	K	Routine Maintenance	0.0	0.0
221	F10006	Logan-Dirty Face	62	15.6	Sec 22 to Logan TH	"	F	F	2	"	I	Spot re-establish tread, brushing, reoove elk trls	0.3	5.0
222	F10006	Spruce Crossing	65	1.5	Entire Trail	"	G	F	3	"	D	Hvy Mtce, reoove slough, retread in short sections	0.7	1.0
223	F10006	Tunnel	117	4.0	Entire Trail	"	F	F	1	"	I	Heavy mtce-Brushing or relocation to avoid brush	1.5	6.0
224	F10006	Deerlick	145	2.0	Entire Trail	"	F	F	1	"	J	Condition Unknown-Access across pvt land, no ROW	"	"
225	F10006	Stanton	146	3.0	Entire Trail	"	F	F	3	"	K	Routine Maintenance	0.0	0.0
226	F10006	Dickey Creek	149	2.0	Entire Trail	"	F	F	2	"	I	Heavy brush, water bars, spot reconstr near Tk	1.5	3.0
227	F10006	Marion Lake	150	3.0	Entire Trail	"	F	F	3	"	D	Brush work and spot reconstruction	1.5	4.5
228	F10006	Essex Creek	151	3.5	Fks of Essex-Dickey Cr	"	F	F	2	"	I	Hvy brushing in clearcuts, boles, stumps, rocks	1.5	5.3
229	F10006	Essex Creek	151	2.0	Trailhead to Fks Essex Creek	"	F	F	3	"	D	Hvy brushing, boles, stumps, rock removal	1.5	3.0
230	F10006	Sheep-Elk	152	3.8	Dirty Face Tr to Sec 17	"	G	F	2	"	K	Routine Maintenance	0.0	0.0
231	F10006	Sheep-Elk	152	1.2	Sec 17 to Sec 8	"	F	F	2	"	G	Reconstruction, very steep, rock and talus	14.2	17.0
232	F10006	Sheep-Elk	152	7.0	Sec 8 to Tr 62	"	G	F	2	"	I	Heavy mtce,snowslide debris and heavy brush	1.5	10.5
233	F10006	Morrison Creek	154	5.3	Trailhead to Dist Bdry	CD	G	F	3	"	K	Routine Mtce - Recently reconstructed	0.0	0.0
234	F10006	Big River	155	5.2	Hwy 2 to Spruce Park	"	G	F	3	"	D	Minor tread work, minor rock work, some brushing	1.0	5.0
235	F10006	Big River	155	10.3	Spruce Park to 25 Mile	"	F	F	3	"	D	Spot reconstr, stabilize trail on a slump	1.0	10.0
236	F10006	Big River	155	4.0	25 Mile to Dist Bdry	"	G	F	3	"	K	Routine Mtce-Bridge reconstruction in 1987	0.0	0.0
237	F10006	Granite Creek	156	7.0	Entire Trail	"	G	F	3	"	A	Const to new TH, reduce grade,major drainage	20.0	140.0
238	F10006	Java Mtn	158	4.4	Entire Trail	"	F	F	2	"	I	Spot reconstr,tread sluffs,sm washouts,brushing	1.5	6.6
239	F10006	Twenty-Five Mile	159	5.0	Entire Trail	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
240	F10006	Biefer Creek	165	5.0	Entire Trail	"	F	F	2	"	I	Brushing and heavy mtce.	0.3	1.5

	Ranger District	Trail Name	Trail Nol	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_NDI	Total Cost_NDI
241	F10006	Long Creek	166	3.6	Tr 155 to Toboggan Cr	"	G	F	3	"	D	Heavy mtce,brushing and spot tread repair	1.5	5.4
242	F10006	Long Creek	166	6.4	Toboggan Cr to Tr 200	"	G	F	1	"	I	Heavy mtce,brushing and spot tread repair	1.5	9.6
243	F10006	Devil Creek	167	4.2	Hwy 2 to Sec 2	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
244	F10006	Devil Creek	167	2.8	Sec 2 to Tr 409	"	F	F	3	"	A	Reconstr/reloc, major rock (slab),drainage,steep	11.4	32.0
245	F10006	Devil Creek	167	1.5	Tr 409 to Tr 260	"	F	F	3	"	D	Heavy Maintenance	1.5	2.1
246	F10006	Twin Peak	200	3.1	HH RD Bdry to HH RD Bdry	"	F	F	1	"	K	Routine Maintenance- recently reconstructed	0.0	0.0
247	F10006	Skimmah	204	1.8	Entire Trail	"	F	F	1	"	I	Heavy maintenance-brushing and tread work	1.5	2.7
248	F10006	Castle	209	1.5	Entire Trail	"	F	F	3	"	B	Wet trail,probably turnpike or corduroy,hvy use tr	16.7	25.0
249	F10006	Bergsicker	217	1.7	Tr 166 to Sec 7	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
250	F10006	Bergsicker	217	2.3	Sec 7 to end	"	G	F	1	"	I	Heavy maintenance-hunter trail only	1.5	3.5
251	F10006	Java Creek	254	2.5	Entire Trail	"	G	F	2	"	J	Condition Unknown	-	-
252	F10006	Vinegar-Moose	260	1.4	Tr 155 to Sec 18	"	F	F	3	"	K	Routine Maintenance	0.0	0.0
253	F10006	Vinegar-Moose	260	5.3	Sec 18 to Tr 323	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
254	F10006	Vinegar-Moose	260	1.7	Tr 323 to Tr 167	"	F	F	3	"	A	Major reconstruction	10.0	17.0
255	F10006	Vinegar-Moose	260	2.6	Tr 167 to Tr 159	"	F	F	2	"	I	Heavy maintenance and spot relocation	1.5	3.9
256	F10006	Grizzly Creek	319	2.8	Entire Trail	"	F	F	2	"	I	Brushing and heavy maintenance	0.3	0.8
257	F10006	Bradley Mtn	323	5.4	Entire Trail	"	F	F	2	"	I	Spot maintenance/reconstruction Scenic trail	0.4	2.0
258	F10006	Rescue	326	2.3	Entire Trail	"	F	F	1	"	I	Spot reconstruction, brushing, rock work	1.5	3.5
259	F10006	Great Bear	328	2.5	Entire Trail	"	F	F	1	"	I	Spot reconstruction-1/2 at hvy brushing, rock work	2.0	5.0
260	F10006	Charlie Creek	330	2.8	Tr 166 to Sec 36	"	F	F	3	"	K	Routine Maintenance	0.0	0.0
261	F10006	Charlie Creek	330	1.4	Sec 36 to end	"	F	F	2	"	I	Heavy maintenance	1.5	2.1
262	F10006	Ousel	331	0.8	Sec 3 to Sec 10	"	F	F	1	"	G	Reconstruct thru talus, build tread,	16.8	15.0
263	F10006	Ousel	331	10.2	Remainder of Trail	"	F	F	1	"	I	Heavy Maintenance, brushing, root removal	1.5	15.3
264	F10006	Cv Creek	332	2.4	Tr 155 to Sec 11	"	G	F	3	"	D	Heavy maintenance-spot reconstruction	1.5	4.7
265	F10006	Cv Creek	332	4.6	Sec 11 to District Bdry	"	F	F	1	"	G	Major reconstruction, steep, rocky, blasting	16.3	75.0
266	F10006	Grant Ridge	339	7.4	Entire Trail	"	F	F	3	"	D	Heavy brush,bent trees from snow, old clearcut	1.5	11.1
267	F10006	Edna Creek	489	3.2	Tr 155 to Sec 4	"	F	F	3	"	D	Heavy Maintenance (see cost for TR 260)	1.5	4.8
268	F10006	Edna Creek	489	0.8	Sec 4 to Tr 167	"	F	F	3	"	G	Reconstr to reduce grade,drainage,not much rock	10.0	8.2
269	F10006	Cascadilla	498	2.5	Entire Trail	"	F	F	1	"	I	Heavy maintenance, particularly alder brushing	1.5	3.8
270	F10006	Granite-Morrison	589	3.1	Sec 19 to Tr 154	"	F	F	1	"	J	Unknown Condition	-	-
271	F10006	Granite-Morrison	589	1.4	Sec 19	"	F	F	3	"	G	Unknown Condition	-	-
272	F10006	Sanke Lake	660	4.0	Entire Trail	"	F	F	2	"	I	Brushing and heavy mtce.	0.3	1.2
273	F10006	Spruce Point	677	2.0	Entire Trail	"	F	F	3	"	K	Routine Maintenance	0.0	0.0
274	F10006	Mule Ridge	740	4.5	Entire Trail	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
275	F12004	Middle Fk	422	3.0	Entire Trail	CB	G	F	2	"	K	Routine Maintenance	0.0	0.0
276	F12004	Red Mountain	423	3.0	Entire Trail	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
277	F12004	Heart Lake	424	0.5	West end of Heart Lake	"	G	F	4	"	D	Erosion control, waterbars	2.0	1.0
278	F12004	Heart Lake	424	1.5	Remainder of Trail	"	G	F	4	"	K	Routine Maintenance	0.0	0.0
279	F12004	Sourdough	427	3.0	Entire Trail	"	G	F	2	"	K	Routine Maintenance	0.0	0.0
280	F12004	Red Ridge	432	1.1	Middle Fk Tr to top of ridge	CB	G	F	2	"	I	Reloc/reconstr in spots to reduce grade	0.5	5.0
281	F12004	Red Ridge	432	1.5	Remainder of Trail	CB	G	F	2	"	K	Routine Maintenance	0.0	0.0
282	F12004	Landers Fork	438	3.0	Indian Mdws to Wild Bdry	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
283	F12004	Landers Fork	438	16.9	Upper and Lower ends of Trail	CB	G	F	3	"	C	Trail grading	0.6	10.3
284	F12004	Landers Fork	438	3.1	Remainder of Trail in Wild	"	G	F	3	"	K	Routine Maintenance (check total trail mileage)	0.0	0.0
285	F12004	Continental Divide	440	2.0	Valley of the Moons segment	CB	F	F	2	"	H	Spot relocation, 90% of work is grubbing & grading	3.5	7.0
286	F12004	Continental Divide	440	7.0	Remainder of Trail	CB	F	F	2	"	K	Routine Maintenance	0.0	0.0
287	F12004	Sheep Creek	441	0.3	Jct. Sheep Cr Tr & Cont Div Tr	CB	G	F	2	"	B	11/4 mile reconstr, heavy clearing, grading	16.7	5.0
288	F12004	Sheep Creek	441	3.0	Remainder of Trail	CB	G	F	2	"	K	Routine Maintenance	0.0	0.0
289	F12004	Sheep Creek	441	1.0	Bighorn Creek Area	CB	G	G	2	"	F	Reconstr, grading, loose material, min clearing	12.2	12.0
290	F12004	Bighorn Lake	442	1.5	Entire Trail	"	F	F	2	"	K	Routine Maintenance - Recently Reconstructed	0.0	0.0
291	F12004	Mineral Creek Cutoff	475	1.5	Entire trail	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
292	F12004	Bugle Mtn	476	2.5	Entire trail	"	G	F	1	"	K	Routine Maintenance	0.0	0.0
293	F12004	Lone Mountain	477	1.5	Trl Jct to Wild Bdry	"	G	F	4	"	K	Routine Maintenance	0.0	0.0
294	F12004	Lone Mountain	477	6.0	Entire Trail inside Wilderness	"	G	F	4	"	K	Routine Maintenance	0.0	0.0
295	F12004	Heart Lk-Landers Fk	478	2.5	Entire Trail	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
296	F12004	Middle Fk	479	0.5	Upper end of Tr -joint w/L&C	CB	G	F	2	"	F	Relocation, grubbing, waterbars,(L&C cost included	6.2	3.1
297	F12004	Middle Fk	479	10.5	Remainder of trail	CB	G	F	3	"	K	Routine Maintenance	0.0	0.0
298	F12004	Horse Creek Rd	480	0.3	Jct Tr 479 to Wild Bdry	CB	G	F	3	"	K	Routine Maintenance	0.0	0.0

nger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_NDS	Total Cost_NDS
F12004	Mainline	481	5.8	Wild Bdry to Webb Lake	CD	G	F	4	-	K	Routine Maintenance	0.0	0.0
F12004	Arrastra Creek	482	7.5	Entire Trail	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
F12004	Meadow Creek	483	6.0	Mainline Tr to above Alpine Pk	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
F12004	Meadow Creek	483	1.0	Remainder of upper trail	"	P	F	2	"	F	Relocation/reconstr, rock work	9.0	9.0
F12004	Mineral Creek	484	1.5	Upper portion of trail	"	F	F	2	"	F	Reconstr, clearing & grubbing, build tread	8.7	13.0
F12004	Mineral Creek	484	0.4	Center section of trail	"	G	F	2	"	I	Spruce bog-install corduroy/short bridges	12.5	5.0
F12004	Mineral Creek	484	4.8	Remainder of trail	"	G	F	2	"	K	Routine Maintenance	0.0	0.0
F15001	Wrong Ridge LO	0	2.2	Entire Trail	"	P	P	1	"	N	Heavy Mtce (brushy and needs erosion control)	1.5	3.3
F15001	Two Medicine Riv NW	101	18.5	Entire Trail	CD	"	"	3	"	N	Spot reloc/reconstr, drainage	1.5	27.8
F15001	Whiterock NW	102	1.0	Top of Pass to 1st str crossing	"	"	"	2	"	F	Reloc/reconstr to reduce grade-very steep	6.5	6.5
F15001	Whiterock NW	102	4.1	Remainder of trail	"	"	"	2	"	K	Drain ruts, routine maintenance	0.0	0.0
F15001	No Fk Badger Cr NW	103	7.9	Entire Trail	Scenic_CD	"	"	2	"	K	Routine Mtce -Very Scenic trail	0.0	0.0
F15001	So Fk Badger Cr NW	104	10.0	Most of trail	"	"	"	3	"	K	Routine Mtce-Reconstructed in 1967	0.0	0.0
F15001	So Fk Badger Cr NW	104	0.5	Crucifixion Cr crossing	"	"	"	3	"	A	Major reconstr-blast cliff, reconstruct t-read	6.0	3.0
F15001	So Fk Birch Creek	105	13.2	Entire Trail	Scenic_CD	F	F	3	"	K	Routine Mtce-Avalanche problems- Very Scenic	0.0	0.0
F15001	E Fk Teton-Blackleaf	106	0.5	Teton River for 1/2 mile	"	F	F	1	"	N	Spot reconstruction	8.0	4.0
F15001	E Fk Teton-Blackleaf	106	9.1	Remainder of Trail	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
F15001	No Fk Teton River	107	13.5	Entire Trail	CD	F	F	3	"	K	Routine Maintenance	0.0	0.0
F15001	Route Creek NW	108	15.5	Cave Mtn to Route Cr Pass	"	"	"	3	4	K	Routine Maintenance	0.0	0.0
F15001	Route Creek	108	2.1	Route Cr Pass to end of trail	CD	P	P	3	4	C	Spot reloc to eliminate steep spots,lt clearing	4.3	9.0
F15001	E Side Sun River	109	7.7	Entire Trail	"	F	P	3	3	C	Spot native bridges, drain boys, corduroy, stumps	1.1	8.0
F15001	No Fk Sun River	110	3.0	Sun River Pass to Round Park	CD	F	P	3	4	C	Brushing, hvy mtce,drainage,short reroutes	1.5	4.5
F15001	No Fk Sun River	110	19.0	Remainder of trail	CD	F	P	3	4	K	Routine Maintenance	0.0	0.0
F15001	Rock Creek	111	12.5	Entire Trail	CD	G	F	3	4	K	Routine Maintenance	0.0	0.0
F15001	So Fk Dupuyer Cr	112	3.0	Entire Trail (cow driveway)	"	F	F	1	"	G	Totally washed out by flood, total reconstruction	8.0	24.0
F15001	West Fk Teton NW	114	6.0	Entire Trail	CD	"	"	3	"	K	Heavy use-High maintenance, Routine maintenance	0.0	0.0
F15001	Open Fork	116	2.4	Sun River to Sec 22	CD	F	P	2	4	N	Boggy, mostly reroutes, some corduroy	3.5	8.5
F15001	Open Fork	116	3.2	Sec 22 almost to N Wall Tr	CD	F	F	2	4	K	Routine Maintenance	0.0	0.0
F15001	Open Fork	116	1.4	North Wall to Switchback Pass	"	F	F	2	4	G	Very steep,reconstr,all rock, very tough going	20.0	28.0
F15001	Washboard-Wrong Cr-NW	117	1.5	Tr 114 to Jct Tr 157	CD	"	"	1	2	K	Routine Maintenance-reconstructed & in good shape	0.0	0.0
F15001	Washboard-Wrong Cr	117	9.1	Jct 157 to McDonald Cr	"	F	F	1	2	K	Very Steep, relocation, drainage, rock blasting	15.0	136.5
F15001	Washboard-Wrong Cr	117	2.4	McDonald Cr to end of Trail	CD	P	P	1	3	K	Routine Maintenance	0.0	0.0
F15001	No Fk Birch Cr NW	121	10.2	Entire Trail	Scenic	"	"	3	"	K	Routine Mtce-Two washouts still need work (Scenic)	0.0	0.0
F15001	Middle Fk Birch Cr	123	1.9	Lower Two Miles	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
F15001	Middle Fk Birch Cr	123	1.6	Upper Two Miles	"	F	F	2	"	G	Washed out 64 flood, sandbar to sandbar at present	6.5	10.4
F15001	North Fk Dupuyer Cr	124	1.7	Lower mile of trail	Scenic	F	F	2	"	H	Spot repair of flood washouts & washed cr crossing	3.0	5.1
F15001	North Fk Dupuyer Cr	124	4.6	Remainder of trail	Scenic	F	F	2	"	K	Routine mtce-very scenic trail	0.0	0.0
F15001	Biggs Creek	128	15.2	Entire Trail	"	G	F	2	3	K	Routine Maintenance	0.0	0.0
F15001	Bear Lop Lookout	129	2.8	Sec 34 to Lookout	Scenic	P	P	3	2	F	Total reconstruction-steep grades	36.4	13.0
F15001	Bear Lop Lookout	129	2.4	River to Sec 34	"	F	P	3	2	K	Routine Maintenance	0.0	0.0
F15001	Red Shale	130	7.0	Entire Trail to North Wall	CD	F	P	3	4	N	Replace native material bridges (8) otherwise OK	1.6	13.0
F15001	Moose Creek	131	15.0	Entire trail	"	G	F	3	4	K	Routine Maintenance	0.0	0.0
F15001	Moonlight Pk	[illegible]	5.0	Remainder of Trail	Scenic	F	F	1	3	G	Steep, rerouting, erosion cntrl,clearing, blasting	11.0	4.0
F15001	Moonlight Pk	132	1.0	Lick Cr up one mile (Sec 3)	Scenic	F	F	1	3	K	Routine Maintenance (Very Scenic)	0.0	0.0
F15001	Elk Calf HRT NW	137	6.9	High Country near Elk Calf Mtn	HRT_CD	"	"	2	"	F	Total reconstr, steep and boggy	11.0	75.9
F15001	Elk Calf HRT NW	137	5.1	Remainder of trail	HRT_CD	"	"	2	"	K	Routine Maintenance	0.0	0.0
F15001	Swift Reservoir NW	143	4.0	Entire Trail	"	G	G	3	"	K	Routine Mtce-Rock removal is a regular problem	0.0	0.0
F15001	Elbow Creek NW	145	4.2	Entire Trail	CD	"	"	3	"	K	Routine Mtce- Reconstructed in 1975	0.0	0.0
F15001	Muskrat Creek NW	147	7.0	Entire Trail	CD	"	"	3	"	K	Routine Mtce-Reconstructed in 1975	0.0	0.0
F15001	Canyon Cr-Phillips	150	4.4	Swift Res to head Phillips Cr	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
F15001	Canyon Cr-Phillips	150	1.4	Phillips to head Sheep Cr	"	F	F	1	"	G	Total reconstr, blasting & rock removal(rockslide)	15.0	21.0
F15001	Canyon Cr-Phillips	150	0.7	Middle section of Sheep Cr	"	F	F	1	"	K	Routine Mtce (not really necessary to open slide)	0.0	0.0
F15001	Canyon Cr-Phillips	150	0.9	Sheep Cr to upper Canyon Cr	"	F	F	1	"	G	Very steep,erosion,need switchbacks,tread,drainage	15.0	13.5
F15001	Canyon Cr-Phillips	150	1.6	Lower Canyon Creek	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
F15001	Lick Creek	151	1.0	From Sun River on up	"	F	P	2	3	N	Boggy, spot corduroy, native bridges, relocation	6.5	6.5
F15001	Lick Creek	151	6.0	Remainder of Trail	"	F	P	2	3	K	Routine Maintenance	0.0	0.0
F15001	Bruce Cr-Crazy Cr	152	11.7	Entire Trail	Scenic_CD	F	F	2	"	K	Routine Mtce-reconst 1974-very scenic	0.0	0.0
F15001	Nesbit-Olney	157	4.5	Remainder of Trail	CD	F	P	3	3	K	Routine maintenance-recently reconstructed	0.0	0.0
F15001	Nesbit-Olney	157	1.5	Wilderness Bdry through Sec 23	CD	F	G	1	3	N	Relocation to avoid steep spots & washouts,erosion	5.7	8.6
F15001	[illegible]	[illegible]	[illegible]	[illegible]	"	"	"	"	"	K	Routine Mtce-trim steps for stock, OK for hikers	0.0	0.0

ger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_RD	Total Cost_RD
F15001	Lick Cr-Red Shale	161	7.0	Entire Trail (low priority)	"	P	P	1	2	G	Steep, boggy, logged in (burns), total reconstr	15.0	105.0
F15001	Gates Creek Fire Tr	162	2.3	From Tr 110 up Gates Creek	"	F	P	1	"	K	Routine Maintenance	0.0	0.0
F15001	Gates Creek Fire Tr	162	1.2	Gates Creek to Tr 161	"	P	P	1	"	G	Heavy timber, boggy, steep, needs rerouting	13.0	56.0
F15001	Ray Creek	164	1.6	Between Tr 110 and Tr 109	"	F	P	1	"	G	Very boggy, major corduroy replacement & turnpike	12.0	19.2
F15001	Ray Creek	164	3.4	Remainder of Trail	"	F	F	1	2	K	Routine Maintenance	0.0	0.0
F15001	Headquarters	165	4.7	Straddles Headquarters Pass	"	F	P	3	4	A	Replace cribbing, drilling & blasting in pass	1.4	6.5
F15001	Headquarters	165	7.1	Remainder of Trail	"	F	F	3	4	K	Routine Maintenance	0.0	0.0
F15001	Gates-Moose Cr	166	8.0	Entire Trail	"	F	P	4	3	K	Routine Maintenance	[illegible]	0.0
F15001	So Fk Red Shale	167	3.5	Entire Trail	"	P	F	1	"	H	Avalanche debris, logged in badly	2.0	7.0
F15001	Blind Cr-Tubby Cr	171	6.0	Entire Trail	Scenic	F	F	1	"	G	Very Steep-Very Scenic, light use	5.3	32.0
F15001	North Wall	175	12.0	Deen Creek to Red Shale	Scenic_CD	G	F	2	4	K	Routine Mtce, Reconstr 1986, avalanche problems	0.0	0.0
F15001	South Wall	175	5.0	Larch Hill Pass to hd W FK Sun	Scenic_CD	G	F	3	4	C	Bog problems, spot corduroy to solve	5.0	25.0
F15001	Larch Hill	176	2.0	Entire Trail	Scenic	F	F	3	"	K	Routine Maintenance-Very Scenic	0.0	0.0
F15001	Potshot-Seedling	182	4.0	Entire Trail	"	F	F	2	"	G	Very steep, bad washouts, needs reloc/reconstr	12.0	48.0
F15001	Our Lake MW	184	4.0	Entire Trail	Scenic	"	"	3	"	K	Very Scenic-Closed to horses last mile-Routine stcl	0.0	0.0
F15001	Monroe Cr Cutoff	188	2.0	Entire Trail	"	P	P	1	3	F	Very steep, total reconstr,heavy timber, low rock	11.0	22.0
F15001	East Fk Sheep Cr	189	4.5	Entire Trail	"	G	G	1	"	H	Tough to find, terminates on pvt land, drainage	1.0	4.5
F15001	Moose Cr-Rock Cr	194	3.0	Entire Trail	Scenic	F	F	3	4	K	Routine Maintenance-Very Scenic	0.0	0.0
F15001	Dryden Creek	198	3.0	Entire Trail	"	F	F	3	"	K	Routine Maintenance -coup e of boggy areas	0.0	0.0
F15001	Sulphur Creek	199	1.7	Entire Trail	"	G	G	3	"	K	Routine Maintenance	0.0	0.0
F15001	No Fk Sun River	201	7.5	Entire Trail inside Wilderness	"	G	G	4	4	K	Routine Maintenance	0.0	0.0
F15001	No Fk Sun River MW	201	10.0	Around Gibson Reservoir	Scenic	"	"	4	"	C	Rock removal 3 times/yr, cribbing repair, hvy stcl	1.0	10.0
F15001	So Fk Sun River	202	0.5	Slump area near Pretty Prairie	"	P	P	4	4	A	Reconstruct trail around slump	5.0	2.5
F15001	So Fk Sun River	202	25.5	Remainder of Trail	CD	P	P	4	4	K	Routine Maintenance	0.0	0.0
F15001	West Fk Sun River	203	18.0	Entire Trail	CD	G	F	3	4	K	Routine maintenance-heavy because of heavy use	0.0	0.0
F15001	Elk Pass	205	9.2	Entire Trail	"	F	F	1	"	K	Routine Maintenance	0.0	0.0
F15001	Dearborn River	206	1.5	Upper end of trail	CD	P	P	3	"	C	Minor reloc,drainage,steep (switchback or two)	1.7	2.5
F15001	Dearborn River	206	20.5	Remainder of Trail	CD	P	P	3	"	K	Routine Maintenance	0.0	0.0
F15001	Blacktail-Landers Fk	207	3.2	Entire Trail	CD	G	F	2	"	F	Steep (old sheep driveway) reloc/rec, hvy timber	6.2	19.8
F15001	Arsenic Creek MW	208	4.0	Trail outside Wilderness	"	"	"	3	"	K	Routine Maintenance	0.0	0.0
F15001	Arsenic Creek	208	1.0	Trail inside Wilderness	"	P	P	3	"	A	Reconstruction of one mile to eliminate steep gr	8.0	8.0
F15001	Ahorn Creek	209	3.5	So Fk to E Fk Ahorn	CD	G	F	2	3	K	Routine Maintenance	0.0	0.0
F15001	Ahorn Creek	209	3.7	E Fk Ahorn to Pearl Basin	CD	P	P	2	3	F	Boggy, washes (spruce bottom)	9.0	33.3
F15001	Ahorn Creek	209	2.0	Above Pearl Basin	CD	G	F	2	3	K	Routine Maintenance	0.0	0.0
F15001	Indian Creek	211	4.5	Lower portion of trail	CD	G	F	3	4	K	Routine Maintenance	0.0	0.0
F15001	Indian Creek	211	1.5	Upper portion of trail	CD	F	F	3	4	A	Tread repair,major rock blasting, erosion control	3.7	5.5
F15001	Straight Creek	212	15.2	Entire Trail	Scenic_CD	3	F	3	"	K	Routine maintenance- lots of rock removal-scenic	0.0	0.0
F15001	Jakie Creek	214	1.0	Lower trail to Sun River	"	G	F	3	"	C	Steep, needs switchbacks	5.5	5.5
F15001	Jakie Creek MW	214	3.5	Remainder of Trail	"	"	"	3	"	K	Routine Maintenance	0.0	0.0
F15001	Half Moon Creek	216	0.5	Upper end of trail	Scenic_CD	G	G	3	"	A	Relocate to reduce grade	10.0	5.0
F15001	Half Moon Creek	[illegible]	3.4	Lower Halfmoon Creek	Scenic	G	F	3	"	K	Routine Maintenance-Very Scenic	0.0	0.0
F15001	Half Moon Creek	216	1.0	Dearborn River end of Trail	Scenic	G	F	2	"	H	Heavy Maintenance	1.0	1.0
F15001	Cave Creek	217	1.6	Lower trail to Sec 18	"	G	F	2	"	I	Bogs, tread repair, corduroy or relocate	3.4	5.5
F15001	Cave Creek	217	1.9	Upper Trail from Sec 18 to end	"	F	G	2	"	K	Routine Maintenance	0.0	0.0
F15001	Whitetail Creek	218	6.6	Entire Trail	"	G	F	2	"	K	Routine Maintenance	0.0	0.0
F15001	Cabin Creek	220	10.5	Entire Trail	"	F	F	2	3	K	Steep in spots but hard to change-routine mtce	0.0	0.0
F15001	Glenn Creek	221	6.4	Entire Trail	"	F	P	2	2	K	Routine Maintenance-needs brushing & limbing	0.0	0.0
F15001	Bear Creek	222	6.0	Lower portion of trail	"	F	P	2	2	K	Routine Maintenance	0.0	0.0
F15001	Bear Creek	222	1.0	Upper one mile of trail	"	F	P	2	2	F	Relocation, steep, tt clearing, reduce grade	9.0	9.0
F15001	Blacktail Creek MW	223	11.0	Entire Trail	HRT_Loop	"	"	3	"	K	Routine Mtce-Good access & loop-recently reconstr	0.0	0.0
F15001	E Fk Ahorn Creek	225	3.0	Ahorn to top of E Ahorn	CD	G	F	1	3	F	Avalanche debris, boggy, heavy timber (reconstr)	9.0	27.0
F15001	E Fk Ahorn Creek	225	6.0	Headley Cr drainage	CD	P	P	1	3	K	Routine Maintenance	0.0	0.0
F15001	Headley Creek	226	1.1	Lower mile of trail	CD	F	F	3	4	A	Reconstr/reloc, bogs, rock, corduroy	5.0	5.5
F15001	Headley Creek	226	5.5	Remainder of Trail	CD	F	F	3	4	K	Routine Maintenance	0.0	0.0
F15001	Ellis Creek	227	2.5	Entire Trail	"	P	P	1	"	G	Heavy timber, bogs	11.0	27.5
F15001	Green Fork	228	4.0	Entire Trail	Scenic_CD	G	F	2	"	K	Routine Maintenance- very scenic	0.0	0.0
F15001	Circle Creek	231	5.0	Entire Trail	"	F	P	3	2	K	Routine Maintenance	0.0	0.0
F15001	Petty-Crown	232	8.1	Entire Trail	Scenic	F	F	2	"	G	Steep, rocky, difficult to reloc te, very scenic	12.0	97.2
F15001	Scapegoat Mtn	234	2.0	Entire Trail	Scenic_CD	G	G	2	"	K	Routine Maintenance - Very Scenic	0.0	0.0
F15001	So Fk Whitetail Cr	235	2.5	Entire rail	"	G	G	2	"	K	Routine Maintenance	0.0	0.0

	Ranger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Feature	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_MD	Total Cost_MD
421	F15D01	Windfall Cr	241	1.5	Section over Black Roof	"	P	F	1	3	N	Extending switchbacks,spot bog work, etc.	4.3	6.5
422	F15D01	Windfall Cr	241	3.0	Remainder of Trail	"	P	F	1	3	K	Routine Maintenance	0.0	0.0
423	F15D01	Bighead NW	242	3.6	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
424	F15D01	Lange Creek NW	243	2.5	Sec 14 and 24, 25	"	"	"	2	"	F	Reconstr, erosion, light clearing	7.2	18.0
425	F15D01	Lange Creek NW	243	3.6	Sec 14 to Gibson Reservoir	"	"	"	2	"	N	Spot relocation, blast rocks and stumps	0.7	2.5
426	F15D01	Lange Creek NW	243	4.0	Remainder of Trail	"	"	"	2	"	K	Routine Maintenance	0.0	0.0
427	F15D01	Observation Pass	246	5.0	Entire Trail	CD	P	F	2	4	N	Heavy mtce, spot bogs, grade improvement		12.5
428	F15D01	Cigarette Creek	247	4.9	Entire Trail	"	P	P	2	"	G	Heavy downfall, totally lost for 3 mi, steep	[illegible]	58.8
429	F15D01	Elbow Pass	248	1.5	Over top of Pass	CD	G	F	2	"	F	Total reloc/reconstr-steep grades, slumps, etc	7.3	11.0
430	F15D01	Elbow Pass	248	2.0	Remainder of Trail	CD	F	F	2	"	N	Spot reloc/reconstr	2.0	4.0
431	F15D01	Goat Creek	249	3.5	Lower section of trail	"	F	P	1	1	K	Routine Maintenance	0.0	0.0
432	F15D01	Goat Creek	249	1.5	Upper section of trail	"	P	P	1	2	N	Hvy mtce, brushing, tread repair, some relocation	3.0	4.5
433	F15D01	So Fk Glenn Creek	250	2.5	Lower portion of trail	"	F	P	2	2	K	Routine Maintenance	0.0	0.0
434	F15D01	So Fk Glenn Creek	250	2.0	Upper trail over to Bear Cr	"	G	G	2	2	F	Relocation, short stretch of tread re-establishment	7.5	15.0
435	F15D01	Last Cabin	254	5.5	Entire Trail	"	G	G	2	"	G	Washed out, steep, rock, hvy timber, total reconstr	15.0	82.5
436	F15D01	Pretty Prairie Cutoff	260	1.5	Entire Trail	"	P	P	4	4	K	Routine Maintenance	0.0	0.0
437	F15D01	Moose-Furnam	261	9.0	Entire Trail	"	P	P	4	3	K	Routine Maintenance	0.0	0.0
438	F15D01	Prairie Creek	262	4.0	Entire Trail	"	P	P	1	1	N	Spot work, brush, two bogs, bad rocks in spots	3.0	12.0
439	F15D01	So Fk Sun Low Water	265	3.0	Entire Trail	"	P	P	4	4	K	Routine Maintenance	0.0	0.0
440	F15D01	Elk Hill	268	3.5	Entire Trail	"	G	G	3	3	K	Routine Maintenance	0.0	0.0
441	F15D01	Sun Butte	277	1.5	Entire Trail (not on topog)	"	P	P	4	"	K	Routine Maintenance	0.0	0.0
442	F15D01	Green Fork Cutoff	279	1.5	Entire Trail	CD	G	G	2	"	N	Blasting of rocks, spot reconstr, Very Scenic	1.5	2.3
443	F16D06	Lo[illegible]ocole Creek NW	13	4.1	Entire Trail	"	"	"	2	"	K	Routine Maintenance	0.0	0.0
444	F16D06	Falls Canyon NW	16	1.0	Lake Otatsy area	"	"	"	3	"	A	Corduroy through bogs-treated deck- $50/ft	24.0	24.0
445	F16006	Falls Canyon	16	0.5	Area near Jct w/Dry Fk Tr	"	P	P	3	"	A	Reroute for 200 yds to avoid bogs	4.0	2.0
446	F16006	Falls Canyon	16	13.5	Remainder of trail	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
447	F16006	Bear Creek	17	5.4	Blkft River to Blkft Bridge	"	F	F	2	"	I	Replace cribbing in 3 Avalance chutes,tread repair	8.0	20.0
448	F16006	Bear Creek NW	17	2.5	Bear Cr TH to Blkft River	"	"	"	2	"	K	Routine Maintenance	0.0	0.0
449	F16006	Mantura Creek NW	27	1.2	Lower trail	"	"	"	4	"	K	Routine Maintenance	0.0	0.0
450	F16006	Mantura Creek NW	27	13.3	Remainder of trail	"	"	"	4	"	D	Put on grade, reconstr, blast rocks, erosion cntrl	0.8	10.8
451	F16006	Morrell Falls NW	30	3.2	Entire Trail	MRT	"	"	"	"	K	Routine Maintenance	0.0	0.0
452	F16006	Dry Fork	31	3.2	Sec 30, Sec 3, Sec 11 (3 segs)	CD	P	P	4	"	A	Reloc(move out of bottom),wate bars,talus,mod clrg	9.4	30.0
453	F16006	Dry Fork	31	4.8	Remainder of trail DC 4	CD	P	P	4	"	K	Routine Maintenance	0.0	0.0
454	F16006	Dry Fork	31	5.2	Jct Tr 31.1 to Hobnail Tea	CD	F	F	1	"	K	Routine Maintenance	0.0	0.0
455	F16006	Dry Fork	31	0.6	Upper mile of trail	CD	G	G	1	"	I	Tread repair,waterbars	5.0	3.0
456	F16006	Hobnail Tea	32	14.5	TH to Carmichael Cabin	CD	G	F	4	"	B	Heavy mtce,tread impvt, 20% of work is waterbars	0.7	10.0
457	F16006	Hobnail Tea	32	"	Same trail segment	CD	G	F	4	"	A	Two major bridges (90ft span) across N Fk Blackfoot	"	60.0
458	F16006	Hobnail Tea	32	3.0	NF Fk Blkft-base Dobroda Pass	CD	G	F	2	"	K	Routine Maintenance	0.0	0.0
459	F16006	Hobnail Tea	32	3.6	Dobroda Pass to Jct Tr 80	"	"	F	2	"	I	Blasting,tread repair, spot reloc, lots of rock	0.8	3.0
460	F16006	Hobnail Tea	32	4.5	Jct Tr 80 to Triple Divide	"	"	F	1	"	I	Spot reloc, blasting unsafe rocks, IB tread	0.7	3.0
461	F16006	Tobacco Valley	33	0.6	Lower mile of trail	"	G	F	2	"	K	Routine Maintenance	0.0	0.0
462	F16006	Tobacco Valley	33	3.6	Remainder of trail	"	G	F	2	"	I	Three short reroutes, one blasting area	4.2	15.0
463	F16006	Lake Otatsy NW	61	[illegible].4	Lower portion of trail	"	"	"	3	"	C	One 30 ft bridge may need replacement	10.0	15.0
464	F16006	Lake Otatsy NW	61	1.3	Lake Otatsy area	"	"	"	3	"	A	Corduroy installation through bogs	19.2	25.0
465	F16006	Cabin Creek	80	8.0	Entire Trail	"	G	F	3	"	K	Routine Maintenance	0.0	0.0
466	F16006	Fenn Mountain NW	80	[illegible].0	Upper one mile	"	"	"	2	"	J	Unknown Condition	"	"
467	F16006	Fenn Mountain NW	80	4.1	Remainder of trail	"	"	"	2	"	K	Routine Maintenance	0.0	0.0
468	F16006	Jenny Saddle NW	141	1.2	Entire Trail	"	"	"	1	"	J	Unknown Condition	"	"
469	F16006	Coop Ridge NW	165	2.4	Entire Trail	"	"	"	3	"	K	Routine Maintenance- needs a few waterbars	0.0	0.0
470	F16006	Spread Mountain NW	166	9.0	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
471	F16006	Amphitheatre	218	1.3	Entire Trail	Loop	G	F	1	"	J	Condition Unknown (good loop opp for visitors)	"	"
472	F16006	Center Ridge NW	246	0.5	Lower 1/2 mile on south end	"	"	"	1	"	G	Construct 1/2 mi trail to connect to TH	3.0	1.5
473	F16006	Center Ridge NW	246	1.0	South end of trail to Sec 18	"	"	"	1	"	K	Routine Mtce	0.0	0.0
474	F16006	Center Ridge NW	246	11.1	Remainder of trail	"	"	"	1	"	J	Unknown Condition	"	"
475	F16006	Blackfoot Divide	278	2.1	Entire trail on SLRD	"	F	F	2	"	K	Routine Maintenance	0.0	0.0
476	F16006	Evans Peak	361	2.5	Eagle Creek Portion	"	F	F	1	"	J	Unknown Condition	"	"
477	F16006	Evans Peak	361	4.7	Strawberry Ridge Section	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
478	F16006	McDonnell Mdws	362	1.3	Entire Trail	"	G	G	1	"	K	Routine Maintenance	0.0	0.0
479	F16006	Driftwood Lake	367	4.5	Entire Trail	"	"	F	1	"	K	Routine Maintenance	0.0	0.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

BNNC Trail Data Table Page 9b

Ranger District	Trail Name	Trail No	Trail Length	Trail Segment	Sp Features	Soil Rating_Const	Soil Rating_Mtce	Opp Class	Trans Category	Const Class	Type of Work	Cost Per Mi_NBH	Total Cost_NBH
F16006	Sarbo Creek	377	3.4	Entire Trail (not entred now)	"	6	6	1	"	J	Unknown Condition-mainly a hunter trail	"	"
F16006	Dunbar Creek NW	400	1.1	Two segments-old to upper parti	"	"	"	2	"	I	Reroute 1/2 mi and blast rock, rebuild tread	6.8	7.5
F16006	Dunbar Creek NW	400	5.9	Remainder of Trail	"	"	"	2	"	K	Routine Maintenance	0.0	0.0
F16006	Shanley NW	401	6.7	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Hinestone Pass NW	402	4.0	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Conger Creek NW	403	0.5	Sec 24	"	"	"	1	"	F	Reroute around bog	4.0	2.0
F16006	Conger Creek NW	403	4.9	Remainder of Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Cooney Creek	406	3.0	Lower 3 miles of trail	CD	6	F	1	"	K	Routine Maintenance	0.0	0.0
F16006	Cooney Creek	406	1.6	Upper portion of trail	CD	F	F	1	"	G	Total reconstruction	14.1	22.5
F16006	Grizzly Basin NW	409	7.6	Entire Trail	"	"	"	1	"	J	Unknown Condition	"	"
F16006	Dwight Creek	414	0.6	1/2 mile from Dry Fk Tr Jct	"	P	P	1	"	I	Short reroute and waterbar installation	2.5	1.5
F16006	Dwight Creek	414	7.4	Remainder of Trail	"	6	F	1	"	K	Routine Maintenance	0.0	0.0
F16006	Pyramid Pass NW	416	3.5	Entire Trail	"	"	"	3	"	K	Routine Maintenance	0.0	0.0
F16006	Lake Mtn NW	421	3.7	Entire Trail	"	"	"	1	"	K	Routine maintenance (a little heavier than normal)	0.0	0.0
F16006	East Spread Mtn NW	435	2.5	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Falls Point NW	436	3.5	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Center Creek NW	443	3.0	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Conger Point NW	448	0.5	Sec 23	"	"	"	1	"	F	Rebuild tread on steep hillside	4.0	2.0
F16006	Conger Point NW	448	3.5	Remainder of trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	East Fork NW	481	1.0	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Windy Pass NW	484	2.1	Lower portion of trail	"	"	"	2	"	K	Very Steep, but no resource damage-routine mtce	0.0	0.0
F16006	Windy Pass NW	484	0.8	Upper portion of trail	"	"	"	2	"	I	Rock blasting, erosion control, tread replacement	6.2	5.0
F16006	Cave Creek	1,217	2.1	Entire Trail	Scenic	6	F	1	"	J	Condition unknown (Very scenic-not entred in years)	"	"
F16006	McCabe Creek NW	1,404	5.7	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0
F16006	Canyon Point NW	1,437	3.2	Entire Trail	"	"	"	1	"	K	Routine Maintenance	0.0	0.0